The Continuity of Explanation: Peircean Pragmatism, Reason, and Developing Reasonable Behavior

by

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I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

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Abstract

Charles Peirce, the founder of Pragmatism, is not known for having developed a normative and ethical theory. His remarks on ethics and normativity are scattered and sparse. There is nonetheless increasing interest in developing these aspects of Peirce's thought. Peirce takes logic to fall under the normative sciences and the open question, as I take it here, is whether the normativity Peirce takes to be present in logic and inquiry can be generalized to form an ethical theory. Most broadly Peirce takes an ethical theory to be a general guide for conduct — it is a guide for conduct in thought, action or behavior more generally, and in feeling. The question becomes whether Peirce's theory of logic and inquiry can offer a more general guide for conduct. Peirce's writings on the classification of the normative sciences, as well as his 'Philosophy and the Conduct of Life,' have led many scholars to answer in the negative. I think that an ethical theory nonetheless arises from within Peirce's writings on logic and inquiry. In this dissertation, I lay the foundation for this alternative approach by showing how Peirce's theory of logic and inquiry serves as a guide for behavior.

The basis for the argument can be briefly summarized. Peirce's logic and theory of inquiry provide normative standards that apply to changes in belief. Peirce takes the formation of a belief to be an inference, and Peirce's logic and theory of inquiry give us the tools (at least the thought goes) to evaluate these inferences. Peirce also supposes a connection between belief and action. According to Peirce the meaning of a belief is the mode of action the belief establishes. The conjunction of these two claims suggests how a more general guide for conduct can be motivated from within Peirce's writings. It suggests that for the Peircean pragmatist the normative standards that apply to belief formation apply directly to established modes of action. This dissertation offers a systematic development of this connection. I show how Peirce takes normative standards to apply to belief, and then show how these standards correspond directly to changes in an individual's behavior.

I begin with a characterization of Peircean pragmatism based on what I call the Continuity of Explanation. The Continuity of Explanation is the commitment that every judgment entails consequences for action that are accountable to scientific investigation. The Continuity of Explanation captures what I take to be the core aspects of Peirce's

theory of judgment and inquiry. It follows from situating the role the pragmatic maxim serves in regulating scientific inquiry and distilling this maxim through Peirce's theory of judgment. I go on to demonstrate how the Continuity of Explanation serves as a guide for developing more reasonable behavior. The characterization of Peircean pragmatism in terms of the Continuity of Explanation yields further advantages. It provides a unified framework to view Peirce's metaphysics, offers a straightforward account of Peirce's theory of action, and can account for Peirce's increasing emphasis on the development of concrete reasonableness.

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It is difficult to acknowledge all of the help I have received in graduate school and in writing a thesis. I want to thank my family — Trish and Aiden — who have both encouraged me and put up with me during the process. I also want to thank my parents, Merry and Steve, and sister, April, who have always encouraged me regardless of pursuit. It is also time that I formally thank two of my earliest philosophy instructors, Gordon Brittan and Jim Allard, who gave me their time and attention when I first started out. Lastly, I want to thank the Department here at Waterloo for their early (and continued) support.

This brings me to the current project. I do not know when I first became interested in pragmatism. A pragmatic response might be to say that it was always functioning in my thought in the background. Though I wouldn't recognize its significance and familiarize myself with its contents until years later, I can credit Rich Haydon for giving me my first collection of Peirce's essays. As I look back on my coursework over the years almost all of my papers touch on pragmatic themes. The intersection between practice and theory and between the moral and epistemic, in particular, have always been present. Though I was convinced of continuity between these areas, my positive position began meager and vague. Each of my instructors can be thanked for directing and developing this work. Continued interaction and discussion with the graduate student community — including Ian, Peter, and Eric — also aided the completion of the project.

This brings me to my supervisor, Shannon Dea. I think my first sustained interaction with Shannon came when I took one of her courses. Since then Shannon has always engaged with my work, and has done so with both encouragement and critical commentary. An added benefit of having Shannon as a supervisor is that I also learn as much from her outside of her office as in it — seeing her give talks, workshops, and see her participate in the larger community. Shannon has been a role model throughout. She is a model for what professional philosophy can and should be. Finally, I'd like to thank other members of my committee — Patricia Marino, John Turri, Rockney Jacobsen, and Götz Hoeppe. Each supplied helpful comments and criticisms that will continue to play a role in my work in philosophy to come.

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Chapter 1

Introduction

Charles Peirce, the founder of pragmatism, increasingly came to emphasize the connection between pragmatism (or his pragmaticism, as he would later come to call it) and the more general development of reasonableness. The reasonable, according to Peirce, is an ideal suggested to us by logic:

> But the saving truth is that there is... an element of Reasonableness to which we can train our own reason to conform more and more. If this were not the case, there could be no such thing as logical goodness or badness; and therefore we need not wait until it is proved that there is a reason operative in experience to which our own can approximate. [CP 5:160][1]

As we develop a method of reasoning, and so train ourselves to reason better, we begin to act more and more reasonably. Peirce referred to the development of reasonable behavior as the development of *concrete reasonableness*. Linking the development of concrete reasonableness to pragmatism, Peirce writes:

[1] Peirce, C. S. (1958-1966). *Collected Papers of Charles Sanders Peirce.* Cambridge, MA: Harvard University Press. Here and throughout referenced by [CP: Volume, paragraph number].

> Accordingly, the pragmaticist does not make the summum bonum to consist in action, but makes it to consist in that process of evolution whereby the existent comes more and more to embody those generals which were just now said to be destined, which is what we strive to express in calling them reasonable. [CP 5:433]

The development of good reasoning leads to the embodiment of reasonableness. This is the ideal and result to which Peircean pragmatism aims.[2] The thesis presented here offers what I take to be systematic account of this development. It shows that Peircean pragmatism suggests a method of reasoning and shows how this method of reasoning subsequently suggests the development of more reasonable beliefs and correspondingly more reasonable behaviors. In short Peircean pragmatism offers, I argue, a theory for developing reasonable behavior.

As a logician most of Peirce's work is rooted in his theory of logic. His development of pragmatism is no exception, and so it should perhaps not be surprising that Peircean pragmatism be seen as offering a method of reasoning. Two further preliminary considerations support the position. First, it is generally recognized that Peircean pragmatism offers both a theory of meaning and a theory of inquiry.[3] The theory of meaning, emphasized notably in "How to Make Our Ideas Clear" [EP1: 124-141,1878], suggests a means of clarifying our thoughts by tracing out their practical consequences. The theory of inquiry, emphasized notably in "The Fixation of Belief" [EP1:109-123, 1877], suggests the scientific method as a means of testing a conception against experience. The two papers and theories were intended to go together[4], and they form the first two papers in a six-part series written by Peirce titled "Illustrations of the Logic of Science." What I want to suggest is that both be read in terms of an underlying appeal to scientific reasoning. Faced with an unclear thought, a scientific inquirer would reason through its experiential consequences, develop-

[2]See discussions of concrete reasonableness in Peirce in [1, most notably from p. 41-56], [3, p. 142-145], and throughout [19].

[3]See a discussion (and colligation) of the two in [9]. A comparison and initial taxonomy is given in [32].

[4]See a discussion in [26, p. 7-9, also Chapter 7 & 8]. The proposed title for the combined work was "Essays Toward the Interpretation of Our Thoughts" [CP 7:313, note 1].

ing at the same time both the content of the thought as a hypothesis and its conditions for testing. Peircean pragmatism — and I go on to substantially defend this view in the thesis — is intended as a method for developing scientific reasoning. A second preliminary consideration suggests that Peircean pragmatism provides method for developing reasoning. If it is the case that pragmatism leads, as the passages above suggest, to the development of reasonableness, then Peircean pragmatism in its earliest stages must contain the rudiments of a method of reasoning — a rudiment, we may say, of reasonableness. Both suggest that Peircean pragmatism at its core is intended as a method for developing reasonableness and, in particular, reasoning in accord with scientific investigation.

While I do not take the broad point to be controversial to Peirce scholars, developing the characterization produces surprising results. For one, it shows that a substantial amount of Peirce's philosophy can be recovered from a few simple assumptions about developing reason. As we'll see, Peirce's conception of belief and inquiry, realism, and the like can all be recovered and situated within this account. At the same time, the characterization suggests a unified framework to understand Peirce's underlying metaphysical assumptions.[5] In each case seeing Peircean pragmatism as a method for developing reasoning proves positive and fruitful.

The focus of the dissertation is to take this one step further. It shows how the method of reasoning on offer recommends certain behaviors as well. Far from a mere method of reasoning in thought, the method offers a theory of reasonable behavior. Certain behaviors are appropriate to inquiry. Developing this account of reasonable behavior in Peircean pragmatism is the focus of the thesis. The discussion includes a Peircean theory of action that shows how Peircean pragmatism distinguishes types of behavior. Types of behavior that I discuss include self-controlled, deliberate, and intentional behavior. Each arise in Peirce's writings and are taken to be significant to inquiry. The discussion also details behaviors that are characteristic of the practice of inquiry. These behaviors include the will to learn, fallibilism, and what Peirce calls synechism, which is the tendency to view the world as continuous. Further behaviors are shown to correspond with the methods

[5]For an overview of potentially conflicting metaphysical commitments within Peirce's thought, see [10], [7], and [23, p. 65]. [14, Ch. 7] offers another description of the problem and offers a potential resolution.

of developing and testing different types of inference. The result shows how Peircean pragmatism offers a guide for developing more reasonable behavior — behavior that is, at least according to the Peircean pragmatist, in accord with Peirce's characterization of scientific inquiry.

Peircean pragmatism offers a theory for developing reasonable behavior. Let me offer what I take to be the core assumptions upon which the discussion is based. Peirce takes the result of inquiry to be a belief. I argue here that Peircean pragmatism follows from two further assumptions. The first is that belief corresponds with a mode of action. According to Peirce the meaning of a belief is the set of possible behavior that the belief establishes. This first assumption provides the Peircean pragmatist with a direct connection between belief and the ensuing behavior. The second is that the belief that is the result of inquiry is a judgment. What Peirce has in mind here, it that a belief that is the result of inquiry can be represented as a series of inferences. This second assumption allows Peirce to appeal to logical considerations within inquiry. Belief, action, and inference (and the subsequent judgment) are inseparably connected in Peircean pragmatism.

With these conceptual connections in place, it is relatively straightforward to see how Peircean pragmatism offers a theory for developing reasonable behavior. Peirce offers a method of reasoning for engaging in inquiry. The method allows us to evaluate inferences and so allows us at the same time to determine whether a judgment, belief, and the corresponding set of established behavior are reasonable. The method of reasoning Peirce offers goes further. In offering a method of inquiry, the method also results in the development of reasonable beliefs. As a method it recommends certain behaviors and judgments. Peircean pragmatism offers a theory for developing reasonable behavior.

1.1 Situating the Contribution

There has been growing interest in Peirce's thoughts on ethics and normativity. An anthology by the name has even emerged (see [8]). The question, I take it, is whether the normativity Pierce thought present in logic and inquiry can be applied to behavior more

generally. This literature is motivated mostly by an interest in Peirce first and an interest in normativity and ethics second. It is clear from the anthology, however, that no clear consensus on Peirce's thoughts on normativity or ethics has arisen. My interest here is ultimately in Peirce's thoughts on normativity and ethics as well. The long range goal is to develop these aspects of Peirce's thought. This dissertation provides the groundwork for such a further project. The dissertation does not present a Peircean ethical or normative theory, but develops what I take to be the first step towards offering such a theory. The groundwork on offer is positioned, as I argue below, to provide a number of advantages over its predecessors in the literature. Each of the key aspects of the present work — the motivation for developing an alternative account of Peirce's ethics, the resulting contributions to scholarship, and my adopted methodology — are each best seen in terms of this further goal of developing Peirce's normative and ethical theory. In this section I discuss two strands within Peirce's writings that have been predominately emphasized in the literature on a Peircean ethics. I go on to situate a third strand that will be my interest here, and which I go on to defend in the next section.

Peirce recognizes that logic falls under the normative sciences. Logic, according to Peirce, is broadly concerned with correct inference. As a practice logic then relies on a more general sense of correctness.[6] This sense of correctness rests on the conformity of some action — at least action in thought or inference — to an ideal. Logic falls under the normative sciences according to Peirce because it is concerned with the conformity of an action to an ideal. Peirce also discusses a second, more general normative science. While logic restricts itself to conduct and ideals in thought, Peirce called the more general study of conduct and ideals in action in general *practics* [CP 1:573]. Practics is concerned with a general theory of conformity of action to ideals. The recognition that logic is a normative science, and that practics is a more general study of the conformity of an action to an ideal, is the starting point upon which most of the discussion on Peirce's normative and ethical thought is based.

[6] According to Peirce this sense of correctness relies on a more general sense of appreciation, which falls under the esthetic. Peirce defends making a sense of appreciation the most general form of deliberate conduct in [EP 2:377-8].

Peirce was interested in the normativity in logic and inquiry but wrote little about its relation to ethics. The question is whether one can generalize Peirce's thoughts on logic and inquiry in the hope of describing what a Peircean ethics might look like. While I ultimately disagree with some of the generalizations and conclusions of these attempts (a point I will elaborate on below), my work here is still very much in this same spirit. I take Peirce's writings on inquiry, scientific practice, and the normativity he thought present in those practices as my starting point, and take them to offer the groundwork for a Peircean ethical theory.

Research on Peirce's ethics has been dominated by discussion of two strands within Peirce's thought. The first strand emphasizes some of Peirce's comments on the relation between ethics and his classification of the normative sciences. His comments in these passages are mostly negative, and he suggests at the start that ethics cannot be a normative science. The second strand emphasizes a lecture given by Peirce in Cambridge in 1898 title 'Philosophy and the Conduct of Life'. During the lecture Peirce suggests at times that ethics and ethical sentiments have no place in science as a theoretical discipline.

Let me first focus on Peirce's remarks on the relation between ethics and the normative sciences. Peirce suggests, at least on one occasion, that the study of ethics goes beyond the study of logic and practics [CP 1:573].[7] Ethics, he writes, requires making an additional judgment about which ideal is the best to pursue — a pronouncement, he thinks, the study of practics cannot provide. The motivation here seems to be that practics is limited to the descriptive study of how an ideal can be pursued if it were to be endorsed, but says nothing about which ideal should be pursued. In other passages Peirce also goes on to question the objectivity found and sought in ethics. He suggests the study of ethics in the end simply reflects a "a sort of composite photograph of the conscience of the members of the community" [ibid.].[8] Without objectivity in ethics, it is difficult to see how ethics

[7]Summaries of the difficulty of classifying ethics in relation to logic and the other normative sciences in Peirce can be found in [19, Chapter 2] and [3, Chapter 4, especially p. 141-5]. Most discussions on Peirce's ethics, however, relate or include a discussion of these passages.

[8]Peirce writes: "Ethics is not practics; first, because ethics involves more than the theory of such conformity; namely, it involves the theory of the ideal itself, the nature of the *summum bonum*; and

can be a science at all. These considerations lead Peirce to doubt whether ethics can be reduced to practics and to a study of the normativity in logic. The result, at least if we take these remarks seriously, is that Peirce takes the study of ethics to go beyond the study of practics and the normativity in logic.

In addition to these remarks, much of the discussion on Peirce's ethics focuses on a lecture given by Peirce in 1898 titled 'Philosophy and the Conduct of Life.'[9] During the lecture Peirce seems to defend a strict division between theory and practice. He writes:

> I would not allow sentiment or instinct any weight whatsoever in theoretical matters, not the slightest. ...science, has nothing directly to say concerning practical matters, and nothing even applicable at all to vital crises. Theory is applicable to minor practical affairs; but matters of vital importance must be left to sentiment, that is, to instinct. [EP 2: 32-33]

Science and practice, it would seem, do not mix. These considerations again motivate a separation in Peirce's philosophy between ethics on the one hand and the study of practics and logic on the other.

I take the emphasis on these two strands in Peirce's writings, and in particular the division that it supposes between ethics and the study of the normative sciences, to be misguided. The problem, as I see it and as the dissertation starts to remedy, is the separation it suggests between the norms that apply to logic and the norms that apply to behavior. This dissertation defends a reading of Peirce where these norms are indeed one and the same.

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secondly, because, in so far as ethics studies the conformity of conduct to an ideal, it is limited to a particular ideal" [CP 1:573].

[9]Again most discussions on Peirce's ethics mention 'Philosophy and the Conduct of Life.' Most of the essays in the anthology on the normative thought in Peirce begin with material from this lecture. See Lizka's 'Charles Peirce on Ethics', De Waal's 'Who's Afraid of Charles Sanders Peirce?', and Mayorga's 'Peirce's Moral Realicism' for examples. Misak's 'C.S. Peirce on Vital Matters' found in [20] is another example. More recent work by [19], [3] and [12, p. 19-24] each address the lecture as well.

To begin to motivate a continuity between these seemingly disparate domains in Peirce's philosophy, I suggest that we can and should look elsewhere in his writings. First, I think we have good reason to take the writings on the normative sciences to be merely preliminary in terms of the development of Peirce's normative thought. Both 'Philosophy and the Conduct of Life' and his initial remarks on the classification of the normative sciences should be seen with this in mind. Several writers, including Misak and Hookway, have suggested that we accept Peirce's comments in 'Philosophy and the Conduct of Life' with qualification. Misak suggests Peirce was being sensational in his delivery and Hookway suggests that the essay, uncharacteristically for Peirce, lacks "philosophical good sense." I have no desire to weight in on these debates here,[10] but what I think needs to be kept in mind is that at this time in Peirce's philosophical development he is just beginning to explore the relationship between normativity and behavior and of his pragmatism to ethics. While this is beginning to be recognized in the literature in regards to interpreting Peirce's comments 'Philosophy and the Conduct of Life,' it is a point that has not been appreciated in discussions on Peirce's classification of the normative sciences, which still serves as the source material from which most discussions on Peirce's normative thought is based. I suggest here that Peirce's writings on the classification of the normative sciences should also be taken as importantly preliminary. Peirce has at this point only just begun to try to apply the categories towards understanding an individual's behavior, and he goes through a number of significant revisions. I do not wish here to dismiss the current work in the literature that is based on these writings. I do, however, want to recognize this important qualification that limits the scope and the conclusions that we draw from these writings.

[10] I am in no position to weigh in on Misak's historical claim that Peirce was responding to a dispute with James. Unlike what is suggested by Misak and Hookway, I find the argument presented in 'Philosophy and the Conduct of Life' to be subtle, rich, and more or less continuous with the rest of Peirce's thought. The supposed difficulties disappear when we recognize that Peirce is using a subtle distinction — and what could very well be an idiosyncratic distinction — between theory and practice. Given these considerations I think it is still appropriate to say, as Misak does and as Hookway's comments suggest, that Peirce is being sensational in his delivery.

The emphasis on Peirce's writings on the classification of the normative sciences and on 'Philosophy and the Conduct of Life' can in some way be excused for practical reasons. The fact is that Peirce only has several scattered passages on ethics and normativity, and the literature has focused on the passages where Peirce's remarks on ethics are most easily identified. It is therefore somewhat understandable that emphasis has been placed on these two strands of Peirce's thought. What I take to be problematic, however, is that these two sets of writings have been emphasized to the neglect of Peirce's larger philosophical project — a project that, once understood and made apparent, already possesses ethical import. This is the second reason I think the emphasis on the previous two strands of Peirce's thought is misguided. I think the emphasis on these two strands is disproportionate to other more significant features of Peirce's philosophy. It is this alternative that I opt for here. The dissertation shows how one can develop Peirce's normative thought and its application to behavior from more general features of his philosophy and theory of inquiry. Peirce's theory of inquiry, properly understood, offers a direct connection between the norms of logic and the norms of behavior.

By focusing on the two strands discussed above the literature has tended to take Peirce's ethics to be separate from the study of practics and logic. I think an ethics, however, can be motivated from within Peirce's writings on the normativity in logic and practics alone. The dissertation develops what I take to be a key first step in defending such a position. Peirce takes ethics most broadly to be a general guide for conduct — it is a guide for conduct not simply in thought, as in the case of the study of logic above, but also serves as a guide for conduct in behavior and sentiment more generally. The question, as I see it here, is whether Peirce's writings on logic and inquiry alone can motivate a more general guide for conduct. This dissertation begins to answer this question in the affirmative by showing how Peirce's writings on logic and inquiry can serve as a more general guide for behavior.[11] A proper understanding of the relation between inquiry and behavior in Peirce's writings

[11] In doing so I set aside for the time being a Peircean account of the development of sentiments. I do take the position developed in the dissertation, however, to be particularly well suited for being extended along these lines. I would appeal to recent suggestions by [19, p. 8-10 & 97-8] and [3, p. 156-60]. For a general discussion of sentiments in Peirce, see [16], [14, Ch. 9], and [30].

shows that — and this is the step that the dissertation begins to develop — Peircean pragmatism has the resources for offering a guide for behavior within logic and inquiry alone. The key is to focus first on the intersection of the two domains — the practice of logic and inquiry, and of behavior more generally – and to look at the development of reasonable behavior. This dissertation shows that a direct connection between the norms of logic and the norms of behavior is found in Peirce's theory of reasonable behavior. Peirce's theory of inquiry and logic, and the normativity Peirce thought present in those practices, provides a more general guide for conduct. Whether and to what extent this constitutes (or would constitute) an ethical theory is a further question, but a systematic account of the development of reasonable behavior in Peirce is a necessary first step towards understanding how a more general guide for conduct can be motivated from within logic and inquiry alone.

As I mentioned above and the start of this section, I do not develop and present a Peircean ethical theory. Neither is my interest here in ethics (or, as we'll see below, action theory) broadly conceived. My interest is primarily in Peirce and in developing and better grounding Peirce's normative thought within his own writings. In doing so I present and develop important aspects of Peirce's normative thought that remain under-examined in the secondary literature. I take Peirce's writings on logic and inquiry to offer a means of evaluating, not simply judgment and inferences, but an individual's more general behavior as well. The aim of the present work is to provide this account. The dissertation shows how Peirce's theory of judgment provides a means for evaluation and developing more reasonable behavior. This move towards defending a Peircean ethics by appealing to more general features of his thought, as we'll see in the next section, has received increasing interest in the literature. Misak [21] and Heney ([12]) show how Peirce's theory of inquiry can apply to ethical doubts and their resolution. More in line with the position presented here, is the work of Massecar ([19]) and Herdy ([13]). The relation between these works and this dissertation, as well as the particular benefits this dissertation has to offer, will be elaborated and defended in the next section.

The work presented here focuses primarily on Peirce's texts. The contribution is to show that a guide for developing reasonable behavior already lies latent within Peirce's writings on logic and inquiry. This connection between Peirce's theory of inquiry and

behavior more generally has been under-examined in the literature, and especially in the literature on Peirce's normative thought. I cite the overemphasis that has been placed on the apparent division between ethics and the other normative sciences above to be a case in point. I further elaborate on the contributions this dissertation offers to the literature in the next section. This dissertation offers a characterization of Peircean pragmatism that suggests no such division between logic and inquiry on the one hand and behavior and a more general guide for conduct on the other. The emphasis that the secondary literature on Peirce's normative thought has placed on this supposed division has neglected this continuity within Peirce's thought. Developing this theory — a theory that is implicit in the rest of Peirce's writings, but that has been under-examined in the secondary literature — is the subject of the dissertation.

The dissertation begins by developing a characterization of Peircean pragmatism and then proceeds to show how this characterization offers a guide for behavior more generally. This dissertation begins with more general, and what I take to be more commonly recognized and accepted, features of Peirce's thought. These general features include Peirce's theory of inquiry and the connection Peirce recognizes between belief and action. The benefit of starting with these general features is that the conclusions reached are continuous with Peirce's writings on practics and logic. This alternative has been largely unrepresented in the literature, and the conclusions reached in the dissertation show that this feature of Peirce's thought can and should be taken seriously. In taking these aspects of Peirce's writings as a starting point, the results begin to demonstrate how an ethics can be motivated from within Peirce's writings on the normativity in logic and practics alone.

While the argument presented does not place emphasis on Peirce's writings on the classification of the normative sciences and on 'Philosophy and the Conduct of Life,' it does find direct support in another strand of Peirce's writings. Let me briefly outline the strand within Peirce's writings that I emphasize here. Though Peirce is not known for having developed an ethical theory, he increasingly came to see that his writings on logic and science have ethical import. Logic and science are for Peirce both normative disciplines. Here is Peirce discussing the connection in a lecture given at the Lowell Institute in 1903:

> [Ethics] is the theory of self-controlled, or deliberate, conduct. Logic is the

> theory of self-controlled, or deliberate, thought; and as such, must appeal to ethics for its principles. [CP 1:191]

Whereas ethics for Peirce is a general guide for conduct, logic is a guide for a particular type of conduct — conduct in thought. Logic is a particular instance of ethical conduct. Summarizing the argument he gave in 1903, Peirce suggests that the connection is even more substantive:

> Considering how it stood in the mid-channel of pragmatistic thought to join ethics to logic, it seems to me strange that we had to wait until 1903 for any pragmatist to assert that logic ought to be based upon ethics. Perhaps some one of us had said it before; but I only know that it was then said in a course of lectures before the Lowell Institute in Boston, and was maintained on the ground that reasoning is thought subjected to self-control, and that the whole operation of logical self-control takes precisely the same quite complicated course which everybody ought to acknowledge is that of effective ethical self-control. [CP 5:533, 1905]

If indeed the development of the two types of self-control are precisely the same, then developing an understanding of logical self-control — what amounts for Peirce to the development of reasoning — is to begin to develop an understanding of the type of control necessary for ethical conduct. Understanding the normativity in logic, if we follow this strand in Peirce's writings, can serve as a means for developing an understanding of the normative in ethics. This is the strand of Peirce's thought that I emphasize here. I show how the same normativity Peirce takes to be present in logic and inquiry applies directly to behavior more generally. This is also the strand, as I elaborate in the next section, that has begun to be developed by Massecar ([19]) and Herdy ([13]).

If such an approach is appropriate, then it has one significant advantage. What is often sought in an ethical theory is that it be compatible with scientific inquiry.[12] Peircean pragmatism suggests how an ethical theory can be developed from within the normativity

[12] As suggested, for example, in David Brink's *Moral Realism and the Foundations of Ethics* [5].

it already finds present in logic and inquiry. If the analogy is not perfect, then the account developed in the dissertation still has ethical import. Defending an ethical theory that is compatible with scientific inquiry requires an understanding of what behavior is appropriate to scientific inquiry. It is indeed this last point the dissertation serves and defends. Peircean pragmatism, as I argue in this thesis, recommends certain behaviors as appropriate for scientific investigation. Any ethical theory that claims to be compatible with scientific investigation would benefit from such a discussion. In the end, and I hope to go some way towards making this clear in this thesis, few philosophies are as ripe for developing a connection between scientific and ethical conduct as Peircean pragmatism.

1.2 Contributions to Peirce Scholarship

As discussed in the last section, most of the work on Peirce's normative thought has focused narrowly on Peirce's comments on the classification of the normative sciences and his remarks in 'Philosophy and the Conduct of Life'. An alternative approach, also suggested above, is to focus on more general features of Peirce's philosophy. In this section I elaborate on these points and defend the need and benefits of this alternative. Recent work by Misak, Heney, Herdy, Massecar, and Atkins move in this direction. In this section I situate this work with respect to these recent accounts and go on to defend contributions that this dissertation offers.

There has been an increasing interest in developing an alternative approach for a Peircean ethics. I mention these approaches below to emphasize continuity in the literature with the current project and to highlight the further contributions this dissertation has to offer. Alternative approaches have been motivated by an increasing dissatisfaction with the two initial strands in Peirce's writings discussed above. This has been motivated in part by Misak and Hookway who have suggested that we place less emphasis on Peirce's comments in 'Philosophy and the Conduct of Life'.[13] Discussions and alternatives have also been offered for Peirce's classification of ethics in relation to the normative sciences

[13]See Misak's 'C.S. Peirce on Vital Matters' in [20, p.164], and [14, p.23]. Also, [3, p.2].

([19, p. 36-41] or [3, p. 148-55]). Peirce went through several classification systems, and the passages that are often cited to motivate a distinction between ethics and the other normative sciences occur when Peirce is still working through alternatives. More developed classifications, ones that are still amenable to Peirce's categories such as given by [19, Ch. 2], Atkins [3, Ch. 4], and [13] move towards alleviating such concerns. The account presented here is in line with these recent developments. The work in dissertation suggests, however, that many of these approaches have not gone far enough in recognizing the continuity in Peirce's view between, on the one hand, the normativity in logic and inquiry and, on the other hand, the normativity in behavior more generally.

Let me begin with a discussion of an alternative espoused by Misak and Heney. In 'C.S. Peirce on Vital Matters' [21], Cheryl Misak suggests how Peirce's method of inquiry can apply to ethical questions. The structure of the argument is relatively straightforward. Peirce takes inquiry to be the activity that begins with a doubt and that ends with the doubts cessation in a newly formed belief. Misak suggests that Peirce's doubt-belief model of inquiry applies just as well in the ethical domain and to ethical doubts. When we have ethical doubts, and she takes it to be relatively uncontroversial that we do, the resulting activity where we try to resolve them counts as inquiry. Insofar as our resolution satisfies the previous doubt and results in a more stable belief then we can have a robust sense of inquiry and progress towards ethical questions.[14] Misak defends this conclusion by appealing to three factors: i) that ethical experience can give rise to ethical doubts and can thus satisfy the initial condition for inquiry to begin, ii) that ethical beliefs gives rise to differences in behavior and so are (at least in theory) accountable to experiential consequences and testing and can thus satisfy the condition for inquiry to continue, and iii) that Peirce's theory of regulative assumptions, which allows us to hope inquiry to be successful in order to keep the practice going, also applies to ethical inquiry and thus can motivate ethical inquiry in practice. Misak concludes that Peirce's ethics is ultimately friendly to cognitivism [21, p. 171]. Heney appeals to a similar considerations in [12].

I find this broad approach suggesting that Peirce's theory of inquiry also applies to ethical doubts unsatisfactory. First, it is at best only a preliminary argument in favor of a Peircean ethics. While I agree that conditions (i)-(iii) are sufficient for us to consider

[14]See Misak's discussion on p. 152-154.

ethics as a potential domain of inquiry within Peirce's doubt-belief model, the argument does not go far enough. Until the details of a method are provided for how beliefs can be evaluated to meet condition (ii), and until an argument is given (perhaps, again, by offering a method for how it can be done) to motivate a hope in (iii), then the theory is importantly incomplete. While Misak and Heney give us preliminary reasons to take Peirce's theory of inquiry to be amenable to ethical inquiry and so for suggesting that Peirce is an ethical cognitivist, what is still needed is a detailed account of how inquiry into an individual's behavior can be conducted and achieved.

Second, and relatedly, this broad approach suggests a false (or at least misguided) distinction between ethical inquiry and inquiry as a practice more generally. Though the argument on offer suggests that a broad conception of inquiry applies to ethical doubts as well, Misak and Heney do little to discuss the distinguishing features of the ethical domain and ethical experience.[15] In setting up in the terms of the debate a distinction between ethical inquiry and what I will just call ordinary inquiry, an opening is created that effects the demonstrative force of the argument. The opening leaves two further questions unaddressed: What is characteristic of the ethical domain and ethical experience? And on what grounds do we have to take the same type of inquiry to apply in this case? Insofar as Misak and Heney leave these further questions unaddressed the broad account is again importantly incomplete. This is, in part, why I find the approach unsatisfying — it is explanatorily limited.

The point is driven home when we recognize that a better argument is available and can be given in its place. The argumentative strategy used by Misak and Heney is at best unneeded and at worse reflects poor reasoning. Peirce, as we'll see, has no need for a distinction between ethical inquiry and ordinary inquiry. An account that reaches the same conclusions and does so within ordinary inquiry closes the opening upon which the two further questions above arise. A proper reading of Peirce's argument adopts this strategy.

[15]To be fair, both Misak and Heney go on to discuss Peirce's classification of the normative sciences and cite the standard passages on his distinction between aesthetics, ethics, and logic. Given the considerations in the previous section, however, I do not think these appeals are helpful. We have good reason to move beyond these preliminary classifications.

The same normativity Peirce takes to be present in logic and inquiry applies directly to behavior more generally. The demonstrative force of the argument is in this case left intact — insofar as one accepts Peirce's theory of inquiry and the normativity present in the practice, then one accepts the same standards apply to an individual's behavior. The normativity that Peirce takes to hold within inquiry and for determining and evaluating belief is the same normativity that applies to an individual's behavior.

The two worries given above relate to the same problem. Misak and Heney, in short, leave open the further question of showing how ethical beliefs can be reasonable. What we need in its place, and the path I've already suggested that we take, is an account of the development of reasonable behavior in Peirce. Misak mentions concrete reasonableness in the third to last paragraph of 'C.S. Peirce on Vital Matters' but dismisses it as a "rather unhelpful answer" [21, p. 170]. This dissertation shows, on the contrary, that Peirce's theory of the development of concrete reasonableness offers a general guide for conduct. In providing an account of the development of reasonable behavior, I offer a response to the first of the worries above and in-so-doing sidestep the second. In regards to the first worry, I offer a method in Chapter 3 for determining and evaluating an individual's belief. Due to the connection Peirce draws between belief and action, the method allows us at one and the same time to determine and evaluate a corresponding action. This is the method that Misak and Heney need to continue to defend their project. The method gives the details for how Peircean pragmatism determines and evaluates an individual's behavior. The method discussed in Chapter 3 also sidesteps the second worry. The method makes no distinction between a supposedly 'ethical' belief and other types of belief. If the aim is to explain and understand an individual's behavior, then the distinction is not needed. As the dissertation goes on to argue, however, this does not spell the end for a theory of normativity that applies to behavior. On the contrary, and due again to the connection Peirce draws between belief and action, it shows that the normative standards that apply to belief formation and inquiry apply directly to behavior as well. This connection is what the dissertation goes on to develop. An account of the development of reasonable behavior in Peirce provides an important contribution to Misak and Heney's account.

There are two additional approaches towards a Peircean ethics in the literature. Both alternatives emphasis, as I suggest above and go on to do here, the importance of Peirce's

development of concrete reasonableness. Atkins is concerned in *Peirce and the Conduct of Life* primarily with defending Peirce's appeal to instinct and conservatism in moral matters [3, p. 148-55]. Atkins approach can be distinguished by his concern to ground concrete reasonableness *pre*-inquiry. By pre-inquiry, I mean he is concerned with grounding concrete reasonableness at the earliest stage of inquiry where an appeal cannot yet be made to metaphysics or logic [3, p. 144]. Atkins correspondingly places his emphasis on abduction and Peirce's account of esthetics. Atkins writes:

> . . . no one has succeeded in showing how the doctrine that the summum bonum is the growth of concrete reasonableness is established independently of Peirce's logic and metaphysics. . . . Nonetheless, the present claim is that Peircean esthetics must be established on its own grounds. [3, p. 144]

I am not here concerned with Peirce's remarks on conservatism in ethics. While it is important to develop these aspects of Peirce's thought, I do not share Atkins' need to ground instinct and common sense beliefs pre-inquiry.

I think Atkins approach to defend instinct and commons sense on its own grounds to be misguided. For one, it stills rests on the distinction between theory and practice that I've suggested does not hold up to scrutiny. Atkins writes:

> We can then extend what Peirce states about reason and the summum bonum to sentiment and instinct and, in turn, shed light on Peirce's rather mystical claims. Those claims, though, are not licensed in theoretical science; they rather concern the conduct of our lives. . . . we can get some traction on Peirce's rather enigmatic, and occasionally inconsistent, claims about the summum bonum and the outcome of evolutionary process if we keep what he has to tell us about theoretical philosophy separate from what he was to tell us about the conduct of life. Peirce's views on each are not inconsistent, but they are separately licensed. [3, p. 140-1]

I suggested in the last subsection why we need to move beyond this reading of Peirce. The method of understanding an individual's behavior presented in Chapter 3 shows why

this distinction is mistaken. Because of the connection between belief and action, Peirce's method for determining and evaluating a belief is the same as evaluating behavior. In this regard, while Atkins does well to emphasize the importance of the development of concrete reasonableness in his account of Peircean ethics, I do not think he goes far enough.

There is a second consideration. Atkins approach falls short on explanatory grounds. It leaves aspects of instinct and common sense unexplained. Instinct and common sense — both what they are and why we have the particular instincts and commons sense that we do — stills needs to be explained. This explanation will take place within inquiry. Atkins does not give sufficient weight to this possibility because his view rests on the old distinction between theory and practice found back in a reading of Peirce's 'Philosophy and the Conduct of Life.' The method presented in Chapter 3 nonetheless allows an explanation. Peirce recognizes that beliefs, once they are sufficiently habituated, become instinctive and can be reflected in sentiments and common sense.[16] The account presented in the dissertation suggests the underlying framework for how these beliefs — and so the corresponding instincts and common sense beliefs that Atkins takes as his starting point — can develop in accord with reason over time. Without doing so, Atkins still owes some explanatory story for how instincts and common sense beliefs arise and develop. Again, as in the case with Misak and Heney, a more complete explanatory story becomes apparent when we recognize how the same normativity Peirce takes to be present in logic and inquiry also applies directly to behavior more generally.

The contributions the present dissertation adds to Misak's, Heney's and Atkins' accounts come from the inclusion of the development of reasonableness within Peirce's larger project of understanding an individual's behavior. Massecar's approach in *Ethical Habits* is similar in scope and aim as this dissertation ([19]). Unlike the accounts above, Massecar gives prime importance to the development of reasonable behavior within the practice of inquiry. His account, I believe, is better for it. Massecar focuses on the development of intelligent habits in Peirce and focuses, as I do here, on aspects of Peirce's theory of judgment. I am largely in agreement with Massecar's approach and take it as a good sign that there are similar recent developments in the work of a Peirce scholar. We cite much of the same material and present a similar conclusion that the development of concrete

[16] See [14, Ch. 8].

reasonableness is continuous with Peirce's ethical project. The account presented here nonetheless also offers an important contribution to Massecar's project. While Massecar shows how Peircean pragmatism can serve as a guide for our behavior, he does not discuss, as I make a point to do here, how to determine whether an individual has a particular belief or habit. I show how Peircean pragmatism offers a theory of action that allows us to identify the beliefs, habits, and practice that an individual is engaged in. The result is not simply a discussion of belief and habit in the abstract, but is a method for identifying and applying these conceptions in our everyday lives. While Massecar offers a discussion of the theory of Peirce's development of concrete reasonableness, I go some way towards extending the theory in a way that we can apply in practice.

This dissertation shows that a direct connection between the norms of logic and the norms of behavior is found in Peirce's theory of reasonable behavior. It offers a characterization of Peircean pragmatism that suggests no such division between logic and inquiry on the one hand and behavior and a more general guide for conduct on the other. I've situated the contributions above in terms of acknowledge this connection. I discuss two further contributions below. The first further contribution is a resolution to a debate in the literature over what are called regulative assumptions. The second further contribution is a development of Pierce's theory of action.

There is an ongoing debate in the literature over Peirce's appeal to what are called regulative assumptions (see [14], [22], [23], [15], & [2]). Regulative assumptions are assumptions that are necessary to continue to engage in a practice and for the practice to have a chance at success. If we take Peirce's doubt-belief model of inquiry, for example, then in engaging in the practice we assume that there are such states of mind as doubt and belief, that there is some way to move from one to another, and that as inquirer's it is possible for us to do so. The question is how to ground these assumptions and what attitude to take towards them. Pierce is adamant that we cannot take these types of assumptions to be true. He writes:

> When I have asked thinking men what reason they had to believe that every fact in the universe is precisely determined by law, the first answer has usually been that the proposition is a "presupposition" or postulate of scientific reasoning.

> Well, if that is the best that can be said for it, the belief is doomed. Suppose it be "postulated": that does not make it true, nor so much as afford the slightest rational motive for yielding it any credence. It is as if a man should come to borrow money and, when asked for his security, should reply he "postulated" the loan. To "postulate" a proposition is no more than to hope it is true.

The consensus in the literature is that Peirce thinks we can merely hope that regulative assumptions are true. Misak writes:

> Peirce seems to be suggesting that there is a propositional attitude, alternative to belief, which is appropriate in certain circumstances... The attitude that Peirce thinks is warranted towards such beliefs is that we should hope that they are true. And in so hoping we should act on them. He is very clear that this is a different matter from believing or asserting. [23, p. 64]

Howat, comparing Peirce's appeal to regulative assumptions to Wittgenstein's hinge propositions, states a similar point:

> The inspiration for this paper is that we can explain these parallel objections by appeal to a single, shared view about the structure of reasons: that some propositions are immune from both rational support (and thus genuine claims to knowledge) and rational criticism (and thus genuine claims to doubt), by virtue of the epistemological role they play in our lives and practices. [15, p. 453]

And finally, Atkin writes:

> However, it is important to note that by claiming some principle to be a regulative assumption on inquiry we are not appealing to its status as a law or claiming it to be a conceptual truth. Indeed, we are not making claims about the truth of such assumptions at all. Instead, we are simply noting that unless we make such an assumption we cannot possibly motivate any attempt to answer a question, and we have thereby 'blocked the road of inquiry' from the outset. [2, p. 451-2]

In each passage the same point is emphasized: in general we cannot take regulative assumptions in Peirce's account to be true.

On the account presented in this dissertation this conclusion is misguided. The mistake is again due to a failing to see the extent to which Peirce's method for evaluating belief applies to evaluating an individual's behavior. While at the start of inquiry we can at best merely hope that such assumptions are true, as inquiry continues these assumptions can be affirmed. Furthermore, they are affirmed using the same method for determining and evaluating beliefs.

Several authors have noted that pragmatism offers a theory of action.[17] In regards to the significance of action to pragmatism, Kilpinen writes:

> One finds in the literature comments about how pragmatists often talk about action... To see this is not yet, however, to see the essential pragmatist point... Their usage of this term and the underlying idea differ from what is customary in other philosophical approaches. Pragmatism namely approaches *all* theoretical and philosophical problems as problems that in the final analysis are related to action. [18, emphasis in original]

In a recent interview, Robert Tallisse makes a similar point:

> [Pragmatism is] concerned with giving an empiricist and naturalist account of action. It wants to try and understand all of the philosophical concepts that we think are important for explaining action — like belief, truth, meaning — in naturalistic terms rather than through an appeal to something either transcendental or mental in some non-naturalistic sense, or a Cartesian sense. It tries to naturalize all these concepts by explaining them in terms of human activity and action. ([31])

In this dissertation these further details for a Peircean philosophy of action are presented. I show how belief, reasons, the practice of inquiry, as well as deliberate and intentional

[17] See [18, 4, 17].

behavior, can each be explained in terms of corresponding modes of action. Importantly, I also show how to identify these types of action when they are present. The result again is not simply a discussion of these types of actions in the abstract, but is a method for identifying and applying these conceptions in our everyday lives.

1.3 Outline

The dissertation presents the method of reasoning Peirce takes to characterize scientific inquiry, a method for determining whether a belief or behavior is reasonable given this standard, and a method for developing more reasonable behavior (again, at least given this standard of reasoning). The thesis is defended in these three parts. I introduce and present a characterization Peircean pragmatism in Chapter 2. The result suggests that Peircean pragmatism is intended as a method of reasoning in accord with his characterization of scientific inquiry. I begin with a discussion of the pragmatic maxim and emphasize the regulative role the maxim serves. The pragmatic maxim most broadly suggests that we treat our opinions as potential hypotheses that could potentially be accountable to scientific inquiry. We may not know how and in what ways an opinion can be treated as a hypothesis accountable to scientific inquiry, but this vague indefinite commitment is, I argue, how Peircean pragmatism gets off the ground. Situating Peircean pragmatism as an indefinite regulative commitment has two advantages. It properly situates the position with respect to the underlying metaphysical commitments upon which it is based, and it gives the right context to see the further assumptions that refine the position into a more substantive method of scientific reasoning and inquiry.

The second half of Chapter 2 begins to discuss some of these refinements. More than just a vague regulative commitment to scientific inquiry, Peirce goes on to suggest maxims that offer progressively finer-grained ways to regulate our thoughts in accord with scientific inquiry. First, Peirce suggests restricting our attention to the possible differences in action that a thought would produce:

> Consider what effects, that might conceivably have practical bearings, we con-

> ceive the object of our conception to have. Then, our conception of these effects is the whole of our conception of the object. [EP 1:132]

The maxim encourages clarity of thought by reducing an opinion to its practical effects. The focus on practical effects is simply a way to capture possible differences in action. These differences in action include differences in how we may conceivably behave, but also differences in how we conceive the object of our thought to behave. Both — and this leads to the significant second step — begin to direct our attention to behaviors that would be accountable to scientific inquiry. The focus on practical effects is a step towards directing our thoughts towards those that are scientifically appropriate. Peircean pragmatism suggests a method of reasoning, where the pragmatic maxim is the first step for regulating our thoughts. The pragmatic maxim serves to regulate our thoughts in accord with scientific inquiry. I go on to offer a resulting characterization of Peircean pragmatism based on what I call the *Continuity of Explanation*. The *Continuity of Explanation* is *the commitment that every judgment entails consequences for action that are accountable to scientific inquiry*. The Continuity of Explanation is suggested as a distillation of the pragmatic maxim taken as a regulative commitment to scientific inquiry and combined with Peirce's theory of judgment.

The Continuity of Explanation serves as the characterization of Peircean pragmatism upon which the rest of the thesis is based. It shows that Peircean pragmatism is based on an underlying commitment to a method of reasoning that Peirce takes to be in accord with scientific inquiry. I take the Continuity of Explanation to capture the initial commitment to the development of reasonableness. It is the regulative commitment to what Peirce takes to be scientific reasoning. With the Continuity of Explanation serving as an embryonic commitment to a method of reasoning I then turn to how it serves as a guide for developing more reasonable beliefs and behavior.

Chapter 3 begins with a more complete account of Peirce's theory of judgment. Peirce takes every judgment to be represented as a series of inferences, where inferences are three types: abductive (or hypothetic) inference, deductive inferences, and inductive inferences. I show how the Continuity of Explanation captures the commitments and methods of each of these types of inference. The result is a significant refinement of the Continuity of

Explanation and a significant defense of Peircean pragmatism as a method of reasoning in accord with scientific inquiry. While one may disagree with Pierce's account of scientific practice, that the logic of science includes these three types of inference I take to be relatively uncontroversial.

In the second half of Chapter 3 I apply the Continuity of Explanation towards understanding an individual's behavior. I show how the Continuity of Explanation allows us to form hypotheses about an individual's behavior and to affirm whether and to what extent the hypothesis holds. The result allows us to determine whether and to what extent an individual's behavior is reasonable. The Continuity of Explanation also allows us to distinguish different types of behaviors. I show how it allows us to distinguish different practices, deliberate and intentional behavior, and, as I demonstrate in Chapter 4, the practice of inquiry itself.

Chapter 4 shows how the Continuity of Explanation offers a guide for developing more reasonable behavior. I begin by applying the Continuity of Explanation to the practice of inquiry in particular. The result is a characterization of the practice and familiarity with the behavior of an individual engaged in it. I go on to show how the Continuity of Explanation recommends certain behaviors. The behaviors recommended in inquiry include a general will to learn, a fallibilism and synechism, and certain behaviors associated with the different types of inference. These resulting behaviors are, according to Peircean pragmatism, reasonable and recommended by inquiry. The result is the final demonstration that Peircean pragmatism offers a theory for developing reasonable behavior — behavior that is more and more accord with Peirce's characterization of scientific inquiry.

Chapter 2

The Continuity of Explanation

Making sense of an individual's behavior is challenging. It is difficult to distinguish individuals who perform similar actions and yet do so for different reasons, desires, or who have different abilities. If we observe an archer hit a bullseye, we may still be uncertain whether the archer is a skilled expert or whether the archer is a novice benefiting from luck and coincidence. If we observe a diner repeatedly order the same dish at a restaurant, we may still be uncertain whether the diner continues to order the meal out of enjoyment, or because the diner has a fear of trying other options. If we observe that an individual has a certain belief, we may still be uncertain about the reasons upon which the belief is based, e.g. whether the belief is based on testimony, experience, or the like. In each case a limited observation makes it difficult to distinguish the meaning of an individual's behavior.

Peirce claims, at least I argue here, that through continued observation and testing we can nonetheless make sense of an individual's behavior. In this chapter I lay the groundwork for this Peircean position. I argue here that Peircean pragmatism follows from two assumptions about inquiry. The first assumption is that making sense of an individual's behavior involves making a *judgment*. The second assumption is that *every judgment is accountable to scientific inquiry*. By *accountable* to scientific inquiry I mean that every judgment has a meaning that can be scientifically determined, evaluated, and

potentially — assuming inquiry is not yet complete — admits of improvement. If both these assumptions hold, then a judgment about an individual's behavior can, like every judgment, be refined and improved through scientific inquiry. In the long run we have reason to think that we can reach a correct judgment about an individual's behavior.

I begin with a short example that highlights these key features of Peirce's position. I then go on to give a general account of Peirce's pragmatism that includes several clarifications and refinements. The result is a characterization of Peircean pragmatism upon which the rest of the thesis is based.

My goal is to show that Peircean pragmatism follows from several basic assumptions about judgment and inquiry. The pragmatic maxim is not motivated by a bold claim about practical consequences, meaning, or truth. It is rather motivated by a much more straightforward demand that our actions be accountable to scientific inquiry. Each subsequent chapter is a consequence or further refinement of the characterization discussed here. The position leads, as I argue in the second half of the thesis, to a worldview with significant implications for developing a guide for reasonable behavior.

An Example

Let me motivate Peirce's position with an example. Imagine observing an individual heating a sample of metal and quenching the sample in oil. At the beginning it may not be clear what the individual is doing and what the individual has in mind. Perhaps the individual simply likes the red glow of hot metal and the hiss and smoke of quenching. Someone more experienced with metal working may recognize steps of the hardening and tempering process. For all we know the individual may be acting in an undisciplined or aimless manner. With only a short observation who can really say what the individual is doing and what the individual has in mind? Peirce takes each alternative to be possible *judgment* about the individual's behavior.

A judgment about an individual's behavior, like every judgment for Peirce, *is accountable to scientific inquiry.* Peirce motivates this claim by recognizing that a judgment about an individual's actions presumes further consequences for the individual's behavior. Scientific

inquiry in turn allows us to affirm whether these consequences hold. If they hold, then the judgment is a good one. If not, then the judgment is mistaken.

To see what Peirce has in mind, let's return to our individual — let's call the person Smith — heating and quenching a sample of metal. We had three possible judgments of Smith's behavior: Smith simply finds the actions enjoyable, Smith is acting with the goal in mind of heat treating the metal sample, and Smith is merely acting aimlessly. Notice, first, that in each case we can continue to ask further questions about the judgment on offer. What is meant, for example, by enjoyable, aimless, or purposeful behavior? Enjoyable behavior is presumably accompanied by signs of pleasure or other behavior associated with enjoyment. We can similarly ask further questions about why the particular judgment is made. Does Smith have a history of blacksmithing, acting aimlessly, or for enjoyment? In each case a response, Peirce recognizes, rests on assumptions about more general aspects of the individual's behavior. A response suggests instances in the past when Smith would have exhibited such behavior or likewise suggests instances in the future when Smith would do so. In each case clarifying the content of the judgment involves citing potential related activity.

Through scientific inquiry we can affirm whether this related activity is found in experience. If Smith does not demonstrate such related activity, and so we can find no answers to these further questions, we may rightfully be suspicious that the individual acted accordingly at all. In this case we can question whether the judgment is a good one. If Smith on the other hand demonstrates related activity, and so we can find answers to these further questions, then this is a sign that the judgment is a good one. The judgment, once we have a clear idea of what it involves, includes further consequences for the individual's behavior that are accountable to scientific inquiry. Every judgment about an individual's behavior is accountable to scientific inquiry.

This example presents a rough account of Peircean pragmatism. Trying to make sense of an individual's behavior involves making a judgment about the individual. The judgment in turn entails further consequences for the individual's behavior that are accountable to scientific inquiry. The above considerations rely on what I refer to as the Continuity of Explanation. The *Continuity of Explanation* (CE) *is the commitment that every judgment entails consequences for action that are accountable to scientific inquiry.* The more mediate

notion of explanation and its relation to the CE will be discussed in Section 4.

Having used the Smith example to introduce Peirce's position, I set the example aside for now. I return to it in Chapter 3 when I apply the Continuity of Explanation towards making sense of an individual's behavior. In the following sections I show how the CE captures Peirce's position. The CE offers a characterization of Peircean pragmatism upon which the rest of the argument in the thesis is based.

2.1 Peircean Pragmatism: Introducing the Pragmatic Maxim

"Philosophy," Peirce writes in 1868, "ought to imitate the successful sciences in its methods" [EP 1:29]. The challenge is making the meaning of this claim more precise. Peirce initially introduces the scientific method as an alternative to methods that appeal to direct apprehension of the world through intuition or to a power (what Peirce takes to be a vague power) of introspection. "Modern science and modern logic", Peirce writes, "requires us to stand on a very different platform from this" [EP 1:29]. "We must," he continues, "put aside all prejudices derived from a philosophy which bases our knowledge of the external world on our self-consciousness" [EP 1:30].

The attractive alternative is that found in science. Describing the method in 1877, Peirce writes:

> It is necessary that a method should be found by which our beliefs may be caused by nothing human, but by some external permanency — by something upon which our thinking has no effect... It must be something which affects, or might affect, every man. And though these affections are necessarily as various as are individual conditions, yet the method must be such that the ultimate conclusion of every man shall be the same. Such is the method of science. [EP 1:120]

Peirce spent a great deal of time studying the method of science and characterizing its practice. As the opening quote suggests, Peirce similarly spent a great deal of time developing a philosophical position that he took to imitate it.

Many characterizations of Peirce's philosophy begin with a discussion of the *pragmatic maxim*. The pragmatic maxim is meant to capture the conduct Peirce takes to be (at least in part) characteristic of scientific inquiry. By showing that the maxim applies to philosophical investigation more generally, Peirce demonstrates how a philosophical method can be in agreement with scientific inquiry as he sees it.

I take the pragmatic maxim as my starting point here as well. One of the original formulations of the pragmatic maxim,[1] and one that is still oft-cited, is given in 'How to Make Our Ideas Clear' (1878):

> Consider what effects, that might conceivably have practical bearings, we conceive the object of our conception to have. Then, our conception of these effects is the whole of our conception of the object. [EP 1:132]

This version of the maxim encourages clarity of thought by reducing mental conceptions to their practical effects. While these practical effects are often highlighted in discussions of the pragmatic maxim and Peirce's position, my focus here begins elsewhere. In this section I emphasize the role Peirce takes the pragmatic maxim to serve *in regulating scientific inquiry*. Substantial aspects of Peirce's philosophy can be recovered by properly situating the pragmatic maxim as a regulative principle. The rest of this chapter will focus on refining and defending the regulative role the pragmatic maxim serves. We'll see that the Continuity of Explanation falls out of this account.

Subsequent sections and chapters also clarify several other terms that I use freely below, including *judgment*, *hypothesis*, *explanation*, and what I mean by being *accountable* to

[1] This version is often taken (even by Peirce himself) to be a significant initial formulation of the maxim. I will often refer back to it as the original version in reference to this early formulation. It is not, however, Peirce's first appeal to the maxim. We find him making similar claims before this. I cite one such passage below. Another is the following: "The meaning of a term is the conception which it conveys" (1868) [EP 1:24].

scientific inquiry. Given these future refinements of relevant scientific terms, along with discussions of the more general notion of a *practice* and the particular practice of *inquiry* in Chapter 3 and Chapter 4, the notion of *scientific inquiry* will see considerable clarification throughout the dissertation. We'll see that each of these terms has a specific meaning for Peirce. In the meantime I take this general outline to be sufficient. My aim in this chapter is more or less introductory and my goal is mostly to situate the role Peirce takes the maxim to serve in regulating scientific inquiry.

What is worth noting for now is that Peirce's use of scientific inquiry is broader than scientific practice conceived as the performing of experiments in a laboratory. Peirce recognizes that there is little difference between an experiment performed in the laboratory and an experiment performed outside of it. Scientific inquiry for Peirce includes the stage prior to an experiment where an inquirer makes the preparations needed so that observations of a certain sort, if they were to happen, would count as an experiment.[2] Scientific inquiry, for Peirce, occurs whenever an individual reasons about experimental — or rather, potentially experimental — phenomenon.[3] Inquiry, for Peirce, is most broadly a means of fixing belief. While there are many means of fixing belief, and so perhaps many means of inquiry, what is characteristic of scientific inquiry for Peirce is that it aims to fix belief in accord with recalcitrant experience [4] These preliminary remarks will see refinement in Section 2.4 and Chapter 3. Peirce goes on to give a method for making and evaluating inferences that he takes to characterize scientific practice. For now I leave the qualification *scientific* in Peirce's conception of inquiry to emphasize the importance Peirce places on experimental phenomenon. The discussion in this chapter is to show how the pragmatic maxim arises from Peirce's attempt to preserve the connection between our thoughts and experimental phenomenon. It is a further question whether and to what extend Peirce's characterization of inquiry and investigation captures scientific practice as we understand it today. In later chapters, I go on to drop the prefix and simply refer to *inquiry* or *Peircean inquiry* in order to emphasize that the argument is based on Peirce's particular characterization and

[2]Peirce takes there to be little difference between an experiment and an attentive observation more generally [CP 2:605-6].

[3]See [CP 5:425-429] and [CP 6:526].

[4]See Peirce's "Fixation of Belief" [EP 1:109,123], as well as discussion throughout [24].

to leave open the question of the accuracy of Peirce's particular characterization.

An early version of the pragmatic maxim, and one that I take as my starting point here, is captured in the following passage from 'Questions Concerning Certain Faculties Claimed for Man' (1868):

> Admit no statement concerning what passes within us except as a hypothesis necessary to explain what takes place in what we commonly call the external world. [EP 1:30][5]

This maxim suggests that every opinion be entertained as a potential hypothesis accountable to scientific inquiry. This version of the maxim helps make clear i) that the pragmatic maxim is motivated by a more general demand for scientific accountability and ii) that the maxim serves a regulative function.

Summarizing this point elsewhere, Peirce writes:

> All pragmatists will... agree that their method of ascertaining the meanings of words and concepts is no other than that experimental method by which all the successful sciences ... have reached the degrees of certainty that are severally proper to them today. [CP 5:465]

Burch agrees with the characterization of the maxim as a more general demand for holding opinions accountable to scientific inquiry. He writes that when Peirce gave his original formulation of the pragmatic maxim in 'How to Make Our Ideas Clear', "[Peirce] had in mind that a meaningful conception must have some sort of experiential 'cash value,' must somehow be capable of being related to some sort of collection of possible empirical observations under specifiable conditions" [6]. Houser supports this characterization as well. "The pragmatic maxim," Houser writes, "may thus be taken as a test for whether

[5]Peirce intends the statement to apply to our understanding of mental phenomena as well. He writes: "The only way of investigating a psychological question is by inference from external facts" [EP 1:23] and "All knowledge of the internal world is derived from hypothetical reasoning from our knowledge of external facts" [EP 1:30].

our conceptions, our theories, are indexed to experience" [EP 1:xxxiv]. On both accounts the pragmatic maxim is motivated by a general demand for scientific accountability.

We find this characterization with an emphasis on the regulative function explicit in Peirce's later writings on pragmatism. At this point Peirce has offered what he takes to be a synthesis of logic and scientific practice and so refers to the admissibility of certain hypotheses rather than the entertaining of certain opinions. The pragmatic maxim, he writes, places a restriction on the type of opinions (here hypotheses) that can be entertained during inquiry. Here is Peirce in 1903 on the subject:

> Pragmatism proposes a certain maxim which, if sound, must render needless any further rule as to the admissibility of hypotheses to rank as hypotheses, that is to say, as explanations of phenomena held as hopeful suggestions; and, furthermore, this is all that the maxim of pragmatism really pretends to do... [CP 5:196]

The maxim is meant to restrict our opinions to those that serve as hypotheses and so can be accountable to scientific inquiry.

How does pragmatism differentiate those opinions that count as hypotheses? They must, Peirce claims, have empirical content so that they can be accountable to scientific inquiry. Here, again, is Peirce on the subject:

> What should an explanatory hypothesis be to be worthy to rank as a hypothesis? Of course, it must explain the facts. But what other conditions ought it to fulfill to be good?... Any hypothesis may be admissible, in the absence of any special reasons to the contrary, provided it be capable of experimental verification, and only insofar as it is capable of such verification. This is approximately the doctrine of pragmatism.[6] [CP 5:197]

[6] A similar remark about abduction is found in [CP 7:220]: "It is plain that three considerations should determine our choice of a hypothesis. In the first place, it must be capable of being subjected to experimental testing. It must consist of experiential consequences with only so much logical cement as is

The pragmatic maxim restricts the admissibility of opinions to those that have empirical content and so can be accountable to scientific inquiry.

The use of the term 'verification' should not deter one's reading of this passage. Peirce explicitly rejects the nominalistic version of verificationism espoused by positivism, which includes the version that would become popular in the middle of the 20th century.[7] Peirce's method for how opinions are affirmed through scientific investigation is subtle and I think it overcomes the problems that have been attributed to verificationism and to his position, such as by Quine (in [28] and [29]).

Peirce himself is aware of the potential difficulty. He continues the passage above: "But just here a broad question opens out before us. What are we to understand by experimental verification? The answer to that involves the whole logic of induction" [CP 5:197]. I set Peirce's theory of induction and his response aside until Chapter 3. In the meantime I refer simply to what is *accountable* to scientific inquiry, where accountable means — and at this stage in the discussion this is admittedly indefinite — what is capable of being evaluated and affirmed in scientific inquiry. The pragmatic maxim suggests that the opinions we entertain be restricted to those that can be accountable to scientific inquiry.

Recognizing the underlying demand for scientific accountability that motivates the pragmatic maxim, along with the regulative function that it serves, is significant to understanding Peirce's position. We will see that much of Peirce's philosophy follows from it. Emphasizing the regulative function of the maxim also helps make clear the underlying assumptions upon which Peirce's position relies. Peircean pragmatism, at least at its most general, is motivated by a demand for scientific accountability. In the next section I turn towards the regulative demand and Peirce's defense of regulation. I turn in the second half of the chapter to what it means for an opinion, on Peirce's account, to be accountable to scientific practice. Peirce defends this claim by offering a method for how he thinks it can be done.

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needed to render them rational. In the second place, the hypothesis must be such that it will explain the surprising facts we have before us which it is the whole motive of our inquiry to rationalize."

[7] See Peirce's criticism in "Critique of Positivism" [CE 2:122-130]. Also the discussion in [CP 5:198-205]

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2.2 Grounding Regulation: Regulative Commitments

I've suggested above that the pragmatic maxim is intended as a general regulative demand for scientific inquiry. It places a restriction on the type of opinions to be entertained during inquiry by demanding that the opinions we entertain be potential hypotheses. How does Peirce justify this move to regulate our opinions to potential hypotheses? Peirce uses the term *abduction* to refer to the form of inference that generates hypotheses. The question is how Peirce justifies regulating abduction. His response is telling. I take it to be a fine example of his larger metaphysical commitments.

Peirce defends abduction at the start of inquiry in that it is needed for scientific inquiry to continue and for it to have a chance at being successful. Here is Peirce at three points discussing his justification of Abduction:

> All the ideas of science come to it by the way of Abduction. Abduction consists in studying facts and devising a theory to explain them. Its only justification is that if we are ever to understand things at all, it must be in that way. [CP 5:145]

And,

> Concerning the validity of Abductive inference, there is little to be said. . . Abduction merely suggests that something may be. Its only justification is that from its suggestion deduction can draw a prediction which can be tested by induction, and that, if we are ever to learn anything or to understand phenomena at all, it must be by abduction that this is to be brought about. No reason whatsoever can be given for it, as far as I can discover; and it needs no reason, since it merely offers suggestions. [CP 5:171]

And finally,

> An Abduction is a method of forming a general prediction without any positive assurance that it will succeed either in the special case or usually, its justification being that it is the only possible hope of regulating our future conduct

> rationally, and that Induction from past experience gives us strong encouragement to hope that it will be successful in the future. [CP 2:270]

Peirce defends abduction on *regulative* grounds. Peirce justifies abduction on the grounds that we need to make abductive (i.e. hypothetic) inferences for inquiry to continue and to have a chance at success.

Peirce scholars have come to see Peirce's defense of regulation as an appeal to *regulative assumptions*. The expression comes, at least most notably in the context of Peirce's writings, from Hookway and Misak.[8] Regulative assumptions, it is said, are assumptions that are made to continue to engage in a practice and for the practice to have a chance at being successful.[9] The pragmatic maxim, which restricts the opinions we entertain to potential hypotheses, is supposed to be appropriate on these grounds.

I agree in part with the broad account of regulative assumptions above. While most of the discussions in the literature on regulative assumptions in Peirce focus on the regulative assumptions of inquiry, the broad account above captures what I take to be an important generality of regulative assumptions. It recognizes the role regulative assumptions play within any practice. The breadth of the account of regulative assumptions above, however, leaves it prone to ambiguity and misinterpretation. I suggest an alternative. *Regulative commitments*, as I prefer to call them, are the commitments that characterize a practice and an individual engaged in it. They are not so much assumptions that an individual makes, or has to be cognizant of, but are commitments that an individual acts in accord with when engaged in a practice.

If regulative commitments characterize the behavior of an individual engaged in a practice, as I suggest, then they serve something like an explanation of the individual's behavior and of the practice. Like other explanations they can be evaluated: Do the regulative commitments in fact serve to characterize the practitioner's behavior? Furthermore, these regulative commitments can in turn be affirmed in experience. An alchemist, for example,

[8]See extended discussion throughout [14]), along with [24] and [23]. Recent summaries and further developments can be found in [15] and [2].

[9]See, for example, [23, p. 50-52].

is committed to there being a way to turn base metals into gold. This commitment regulates, and so helps characterize, the alchemist's behavior, but the commitments that it rests upon will not be confirmed in experience. There is no way to turn base metals into gold. The regulative commitment is in fact mistaken. A metallurgist who on the other hand acts on the hope that there is a way to extract a base metal from its ore would nonetheless have their commitment affirmed by the smelting process. Regulative commitments can be affirmed in experience.

Regulative commitments characterize a practice and an individual engaged in it. Though an individual need not be aware of the commitments that regulate their behavior, an individual can come to be aware of them and go on to hope that they are true. I argue here that Peirce takes the pragmatic maxim to be a regulative commitment of scientific inquiry. An individual engaged in the practice acts in its accord. An inquirer acts in accord with the pragmatic maxim to continue to engage in the practice and for the practice to have a chance at success.

I further defend this account below. First I suggest differences between this account and discussions of regulative assumptions in the literature. The expression 'regulative assumptions' comes from Kant, and some Peirce scholars have likened regulative assumptions in Peirce to regulative assumptions in Kant. The connection is not inappropriate. Peirce acknowledges a Kantian influence, and his early discussions of regarding regulative assumptions seem to share features of indispensability arguments. But Peirce would later, however, explicitly reject appeals to transcendental claims. He takes transcendental explanations to be poor and finds appeals to 'necessary' factors and 'presuppositions' or 'preconditions' of a practice to be vague and unhelpful.[10] In the end Peirce does not give regulative assumptions any transcendental status. A practioner cannot appeal to transcendental factors to defend regulative assumptions.

If we move beyond the Kantian account, as I think we should, then the question becomes what sort of epistemic status a practitioner should nonetheless give to these regulative assumptions. Misak suggests that the propositional attitude a practitioner adopts toward

[10]Discussion of transcendental leanings in Peirce and the difficulties for interpretation that follow can be found in [10] and [7], [14, Ch. 7], and [22].

regulative assumptions always remains a mere hope. "[Peirce] is very clear," she writes, "that this a different matter from believing or asserting" [23, p. 65]. In this case an individual engaged in a practice can at best hope that these assumptions are true. Hookway recognizes a similar tension in Peirce's views.[11] Hookway resolves this tension by appealing to a distinction between practical, or living beliefs, and the theoretical beliefs that are the result of scientific inquiry. The practitioner on this account can defend regulative assumptions on practical grounds but not theoretical grounds. The alternative that I offer below suggests that these views are incorrect. The debate is overblown. Regulative commitments, contra Misak, can go on to be confirmed, and regulative commitments can be confirmed in the same manner, contra Hookway, as beliefs that are the result of scientific inquiry. The solution lies in a proper understanding of Peirce's position. We should, in fact, expect such continuity of confirmation in Peirce.

Two more recent accounts of regulative assumption in Peirce deserve mention. Howat suggests that regulative assumptions in Peirce are akin to Wittgenstein's hinge propositions [15]. I think this captures an important aspect of the relationship between a practitioner and the regulative assumptions (and similarly regulative commitments) at the start of the practice, but it again leaves out the type of confirmation that regulative commitments can receive as the practice continues and develops. Another recent account offered by Atkin suffers the same problem [2]. Atkin gives no further account for how Peircean regulative assumptions can be affirmed in the course of experience. Of note, Atkin does emphasize an important motivating or affective element in Peircean regulative assumptions. He recognizes that regulative assumptions include motivating or affective states that may be significant to characterizing an individual engaged in a practice. This is based in part on Peirce's remarks (emphasized by Misak above) that a practitioner may *hope* regulative assumptions are true. I agree with this inclusion, and take this to warrant in part the move towards discussing *commitments* rather than *assumptions* that regulate and characterize a practice. They are not simply assumptions but include motivational or affective states characteristic of a practice.

The move towards regulative commitments offers a worthwhile alternative to these debates in the literature. Regulative commitments characterize a practice and an individual

[11] See [14, p. 38-40 and p. 188, Ch. 9].

engaged in it. Peircean pragmatism goes further and suggests that regulation is the primary means of characterizing a practice. I defend this position below.

2.2.1 Regulation as primary

For Peirce, regulation is the primary means of characterizing a practice. Defending the importance of regulation when characterizing scientific practice, Peirce writes:

> That which constitutes science, then, is not so much correct conclusions, as it is a correct method. But the method of science is itself a scientific result. It did not spring out of the brain of a beginner: it was a historic attainment and a scientific achievement. So that not even this method ought to be regarded as essential to the beginnings of science. That which is essential, however, is the scientific spirit, which is determined not to rest satisfied with existing opinions, but to press on to the real truth of nature. [CP 6:428]

Peirce takes the regulation of a practice to be the best means of characterizing a practice. The reason, suggested in the passage above, is that both the results of science and its methods are prone to change and revision. Because science as a practice is changing and evolving, where its results and even its method are susceptible to revision, what characterizes a scientist at work cannot be a particular interest in a result or method, but must include an openness to what the (future) results and method will be. The scientist must act on an openness to the future practice. This spirit — what Peirce refers to above as the *scientific spirit* — is a willingness to engage in the practice whatever the result or method may turn out to be. That which animates the scientist must then be more general than any one result or method. This spirit accounts for historical developments as well. What characterizes the historical attainments of the practice cannot be the results, which were sometimes (and even often) mistaken, or the method, which was imperfect, but again by the general spirit that motivated the scientist. The scientist must be animated by an indefinite understanding — or, as I prefer to say, a general understanding — of the future results and methods of the practice. In the above passage, a practice and its practitioners

are best characterized by this regulative spirit. Regulation is primary for characterizing a practice and an individual engaged in it.

This is a good first step, but a further clarification is in order. It may be tempting to see regulation as a necessary first step towards engaging in a practice. Using the example of hypotheses in scientific practice, it may be argued that an important first step in regulating scientific practice is to restrict the opinions we entertain to those that are (or might be) hypotheses. This is especially so when we consider, as I think tends to be the case, that we often need to consider several hypotheses before we arrive at one that is taken to be successful. Scientific practice seems to support the position that it be initially regulated by restricting opinions to potential hypotheses. In terms of the scientific spirit, the argument here would be that the scientific spirit is needed at the beginning of the practice.

Restricting the opinions we entertain to those that serve as hypothesis is appropriate, on these grounds, because it is a necessary *preliminary* step to engage in scientific practice and for our engagement in the practice to have a chance at success. This is in accord with the appeal to regulative assumptions above. Restricting opinions to potential hypotheses is appropriate for scientific practice to continue and for it to have a chance at success.

I take Peirce's position, however, to be more subtle. The preliminary account above suggests that regulation is significant because we need to fail in scientific practice before we succeed. This can be the case (and as acknowledged above is perhaps even often the case), but Peirce recognizes that it doesn't necessarily have to be so. It is certainly not a logical impossibility, as it may be that the first hypothesis was (or happened to be) a correct hypothesis (and even correct in all the right ways).[12] This action would be sufficient to serve as a counter-example to the preliminary account above. But it does not serve, I take it, as a counter-example for Peirce's position properly understood. Offering hypotheses and potential explanations may (or at least may often be) an important preliminary step in scientific practice. But I take the Peircean pragmatist to possess a stronger argument for the primacy of regulation when characterizing a practice. Regulation is more fundamental than this.

[12]The point here is not that it has to happen, but that eventually a good guess will arise, and nothing restricts the good guess from being this good.

I take there to be an underlying regulative principle that grounds the primacy of regulation in Peirce's writings. As suggested above, the inquirer does not yet know all of the correct results that science will (or would bring). Similarly, the inquirer does not yet know what method or methods will (or would) be appropriate to the practice. The inquirer must then be (at least in part) motivated by an openness to what these further results and further methods would be. In the interim the inquirer must be regulated by what the correct results or appropriate method(s) *might* be. I take this general regulative principle to be the Peircean pragmatist's best initial defense of the pragmatic maxim.

The initial justification for the pragmatic maxim, on this account, comes from the fact that any act in accord with a practice will likewise be in accord with this general regulative principle. Every potential engagement in a practice is regulated by what is possibly engagement in the practice. Every potential successful engagement in a practice is regulated by what is possibly a successful engagement in a practice. Every act in accord with a practice falls under the larger class of regulated actions. The general regulative principle follows from an assumption about the classification of actions. A successful action falls under the broader class of actions that might be successful.

The pragmatic maxim, on this account, supposes that a practice must generally be regulated by the actions that might be needed to continue to engage in the practice and that might be needed for the practice to be successful. We saw in the last section that the pragmatic maxim restricts the opinions we entertain during inquiry to potential hypotheses, where hypotheses are just those opinions that might be accountable to scientific practice. It asks us to regulate our opinions to those that might be relevant to the practice and that might be successful. On this account, the pragmatic maxim is most broadly a statement about what regulation *does*. The pragmatic maxim, I suggest, is initially defended on these grounds. It is a suggestion for regulating scientific inquiry by restricting our opinions to those that serve as potential hypotheses and so that might be accountable to scientific practice. The initial justification for this claim comes from the general regulative principle above.

The examples above show nicely why the pragmatic maxim, at least at its most general, does not conflict with scientific practice. If regulation asks us at first to restrict opinions to those that are hypothesis, and to those that might be successful, every instance of

scientific practice will be in its accord. Acting in accord with scientific practice involves acting in accord with what might be scientific practice. Achieving success in scientific practice involves acting in accord with what might be successful in scientific practice. In each case former is simply a subset of the latter. At its most general the pragmatic maxim as a regulative principle then does not — and perhaps even cannot — conflict with scientific practice.

This is the significant reason why at this point in the argument we need not discuss the finer points of scientific practice. The initial justification for the pragmatic maxim, a least at its most general, is just a claim about regulation. No engagement in the practice does not also count as what might be engagement in the practice. No success in a practice does not also count as what might be success in the practice. The pragmatic maxim, at its most general, is simply a claim about regulating scientific practice *whatever it may turn out to be*. Of course, Peirce goes on to offer a more detailed account of scientific practice and a more detailed account of the pragmatic maxim that regulates it. These refinements will be discussed in the rest of this chapter and the next. The initial justification for the maxim nonetheless follows, I argue, from this general regulative principle.

I turn in the final section towards what Peirce means for an opinion to be accountable to scientific inquiry. Peirce defends this claim by offering a method for how it can be done. I begin with a general motivation for the method in order to show the minimal assumptions that are needed to get the method off the ground.

2.3 Refine and Defend the Pragmatic Maxim, pt. 1: Belief and Action

The pragmatic maxim regulates scientific inquiry. I suggested in Section 1 that the regulative function is enforced by what I have referred to broadly as the scientific demand. The scientific demand is a general demand for scientific accountability. The discussion of the pragmatic maxim in the last section suggested that an inquirer restrict one's actions

to what might count as engaging in scientific practice and what might be successful to the practice; namely, to restrict one's opinions to those that serve as hypotheses and potential explanations.

The generality of the discussion of the maxim above is helpful in situating the maxim within scientific practice, but the resulting characterization is too broad to be helpful in guiding inquiry. In the next two sections I show how Peirce adds to the above picture. The additions show how the maxim is more than just the (vague) regulative point about scientific practice that the above account suggests, but that the maxim offers a substantive method for guiding inquiry. It offers, I suggest, a method of reasoning in accord with scientific practice.

2.3.1 Belief and Action

"The feeling of believing," Peirce writes in 'The Fixation of Belief' (1877), "is a more or less sure indication of there being established in our nature some habit which will determine our action" [EP 1:114]. We find this connection between belief and action even earlier in Peirce. He writes in 'Questions Concerning Certain Faculties Claimed for Man' (1868):

> ... it is a mere question of words whether we define belief as that judgment which is accompanied by [a peculiar feeling of conviction], or as that judgment from which a man will act. [EP 1:22]

Peirce also makes use of this connection in his original derivation of the maxim given in 'How to Make Ideas Clear' (1878), where he supposes that belief consists in the establishment of a rule of action [EP 1:129].

When Peirce mentions the connection between belief and action in the passages above he takes the connection more or less as given and does not elaborate or defend it. He nonetheless comes back to address the connection and its importance to pragmatism in 1903. Peirce at this point dismisses what he takes to be weaker psychological assumptions

in his initial accounts of belief.[13] His interest in the supposition, however, remains intact. Referring back to the supposition appealed to in 'How to Make Our Ideas Clear,' he writes that he had supposed "belief [to consist] mainly in being deliberately prepared to adopt the formula believed in as the guide to action" [CP 5:27]. His interest in defending the pragmatic maxim now turns towards defending this claim [CP 5:25-29].

The supposition, as I take it here, is that *belief establishes a mode of action.* I do not, at least not yet, attempt to defend this supposition outright. My aim here is, rather, to show that Peirce takes the supposition to follow from holding the notion of belief accountable to scientific inquiry. Peirce, as we'll see in the next section, goes on to offer a more substantive account of belief. For now, however, I focus on this connection between belief and action to highlight the minimal assumptions that are needed to motivate the pragmatic maxim. All that is needed is the supposition that belief establishes a set of actions or possible behaviors. In the next section I expand on this account. But, again, for now this minimal account suffices.

The argument is straightforward. For the notion of belief to be accountable to scientific practice, then it must be based on some empirical content. For the notion of belief to be based on empirical content then it must refer to a set of possible behaviors or actions. Referring back to Houser's expression from before, we may say that for the notion of belief to be scientifically appropriate it must be "indexed to experience." It must, now referring back to Burch, "be capable of being related to some sort of collection of possible empirical observations under specifiable conditions." The result, and now I suggest Peirce's position, is that belief establishes a set of possible behaviors. This is the case, at least, if the notion

[13] We see signs of the weaker psychological assumptions in the passages above, where Peirce still associates a 'feeling of believing' or a 'feeling of conviction' with belief and judgment. Compare this, for example, with a later account of belief given in 1903: "Belief is not a momentary mode of consciousness; it is a habit of mind essentially enduring for some time, and mostly (at least) unconscious" [CP 5:417]. The account developed below is in accord with these later developments in Peirce's position. Peirce continues to recognize that feelings can accompany belief and judgment, but he no longer seeks to appeal to such factors in his derivation of the pragmatic maxim. See the discussion in [CP 5:25-33].

of belief rests on empirical content and so is accountable to scientific practice.

This is what we find in Peirce. Peirce writes: "different beliefs are distinguished by the different modes of action to which they give rise" [EP 1:129-30]. Belief, here, consists in the establishment of a mode of action. Without some possible difference in action then scientific practice would attribute the same belief. Peirce writes: "If beliefs do not differ in this respect, if they appease the same doubt by producing the same rule of action, then no mere differences in the manner of consciousness of them can make them different beliefs" [EP 1:130]. Different beliefs, if the attributed difference is to be scientifically appropriate, must likewise consist in establishing a different mode of action.

There are three points worth emphasizing about Peirce's position cited above. As I have stressed from the start of the section, the first is that Peirce takes belief to refer to a set of possible behaviors. This follows from trying to restrict the notion of belief to one that is accountable to scientific inquiry. It follows, as I've put it, from applying the scientific demand to the notion of belief. The second is Peirce's claim that if no difference is found in possible behavior then scientific practice would attribute the same belief. This claim is significant to understanding Peirce's position and I appeal to it in arguments later in this chapter and the next. Of note for now is that this leads Peirce to suppose that the attribution of *different* beliefs, if the attribution is to be scientifically appropriate, must come down to *a possible difference in behavior*. This is an early version of the Continuity of Explanation that I mentioned in Chapter 1 and the beginning of this chapter, and will go on to elaborate below. The third is the move from talking about 'a set of possible behavior' as I did at the start to what Peirce refers to in the above passages as *a mode of action*. This difference is not insignificant but its helpfulness will not be addressed until the next section. The important point is that Peirce takes a belief to establish a mode of action, a mode of action that can in part be characterized by a set of possible behaviors. Peirce takes each of these to follow if we restrict the notion to one that rests on empirical content and so is accountable to scientific inquiry.

2.3.2 Regulating Opinions: Reintroducing the Pragmatic Maxim

Once we take belief to establish a mode of action, there is only one further assumption to yield the pragmatic maxim. Peirce calls the activity in thought that begins with the starting of a question and ending with its resolution *inquiry* [EP 1:128]. Peirce takes the result of inquiry to be a belief. Inquiry, for Peirce, is the activity in thought between doubt and belief [EP 1:128].[14] If we take belief to consist in establishing a mode of action, and the result of inquiry to be a belief, then the result of inquiry likewise consists in establishing a mode of action. Peirce assumes, in short, that the result of inquiry be connected to action as well. This is the insight that would motivate the pragmatic maxim.

We may say that inquiry for Peirce is anchored by doubt on the one hand and belief on the other. The doubt that begins inquiry is doubt over a prior belief and the result of inquiry is also a belief. Both the preliminary and antecedent belief consist in establishing a mode of action. Peirce takes inquiry, whatever it may be, to be the activity in thought between these two modes of action.

We see this move in Peirce's original derivation of the pragmatic maxim in 'How to Make Our Ideas Clear'. "The function of thought," Peirce writes, "is to produce belief" [EP 1:127].[15] As belief consists mainly in the establishment of a mode of action, "the whole function of thought," Peirce concludes, "is to produce habits of action" [EP 1:131]. Peirce is supposing here that the result of inquiry likewise consists in establishing a mode of action.

It is at this point where Peirce suggests the insight that would become the pragmatic maxim. If the result of inquiry would ultimately be accountable to the mode of action for which it gives rise, then inquiry should be regulated by these considerations. If inquiry is anchored between two modes of action, then Peirce suggests — and here he posits the pragmatic maxim — that the opinions that we entertain during inquiry be guided as well by considerations that consist mainly in establishing a mode of action.

[14] See a discussion of the same point in [CP 7:313-325].

[15] Peirce is also explicit about the statements importance: "That the settlement of opinion is the sole end of inquiry is a very important proposition." [EP 1:115].

Below is Peirce beginning to formulate the maxim that becomes the pragmatic maxim. Referring here to confusions in thought that arise when we mistakenly take the same beliefs to be different, Peirce writes:

> From all these sophisms we shall be perfectly safe so long as we reflect that the whole function of thought is to produce habits of action; and that whatever there is connected to thought, but irrelevant to its purpose, is an accretion to it, but no part of it... Thus, we come down to what is tangible and practical, as the root of every real distinction of thought, no matter how subtle it may be; and there is no distinction of meaning so fine as to consist in anything but a possible difference in practice. [EP 1:131]

This maxim suggests that we entertain opinions by considering the resulting modes of action for which they give rise. I take a tangible and practical difference here to be one that consists in a possible difference in action and so is, at least potentially, accountable to scientific practice. On this reading Peirce's emphasis on practical effects is simply a means to capture the part of the opinion that is potentially scientifically appropriate. The same can also be said of the teleological wording. While we may be able to talk of the 'goal' or 'function' of thought as producing modes of action, Peirce's motivation for these claims comes from a demand for scientific accountability.[16]

[16]It is interesting to point out that Peirce latter acknowledged the teleological weakness in this initial argument for Pragmatism presented in *Ideas*. He writes in 1908:

> My original essay, having been written for a popular monthly, assumes, for no better reason than that real inquiry cannot begin until a state of real doubt arises and ends as soon as Belief is attained, that "a settlement of Belief," or, in other words, a state of satisfaction, is all that Truth, or the aim of inquiry, consists in. The reason I gave for this was so flimsy, while the inference was so nearly the gist of Pragmaticism, that I must confess the argument of that essay might with some justice be said to beg the question. [CP 6:485]

I take the teleological assumption — that the goal or end (or aim) of inquiry is the settlement of belief

It is only shortly thereafter that Peirce derives the original version of the pragmatic maxim given in 'How to Make Our Ideas Clear' (1878):

> Consider what effects, that might conceivably have practical bearings, we conceive the object of our conception to have. Then, our conception of these effects is the whole of our conception of the object. [EP 1:132]

The maxim, as I wrote before, encourages clarity of thought by reducing an opinion to its practical effects. The focus on the practical effects is again simply a way to capture possible differences in action. It is intended to capture, as I've stressed here, differences in the resulting belief that would potentially be accountable to scientific practice. *The pragmatic maxim suggests we regulate the opinions we entertain during inquiry by considering the modes of action for which they would give rise.*

Peirce would continue to put the maxim in terms of practical consequences. Here are two other versions that emphasize practical effects:

> pragmatism is the doctrine that every conception is a conception of conceivable practical effects [CP 5:196] (1903)

> For the maxim of pragmatism is that a conception can have no logical effect or import differing from that of a second conception except so far as, taken in

— to be the weak part of the argument that Peirce is referring to here. I avoid this to an extent in the derivation above by emphasizing, as I take to be appropriate to Peirce's view, not the *mere* settlement of opinion but the settlement that *would* be found if scientific inquiry were carried sufficiently far. Peirce in fact makes the same point in the continuation of the above passage when he writes: "The first part of the essay, however, is occupied with showing that, if Truth consists in satisfaction, it cannot be any actual satisfaction, but must be the satisfaction which would ultimately be found if the inquiry were pushed to its ultimate and indefeasible issue." It is worth noting that Peirce continues to acknowledge so many years later that "the inference was so nearly the gist of Pragmaticism." I take Peirce's theory of judgment, here characterized by the CE Method discussed in Chapter 3, to be the better argument and defense (the "gist of Pragmaticism") that Peirce has in mind.

> connection with other conceptions and intentions, it might conceivably modify our practical conduct differently from that second conception. [CP 5:196] (1903)

In addition to an understanding of practical effects and consequences, we can still now see the maxim in its role for regulating inquiry. The pragmatic maxim, on this reading, presumes that an individual look to the different practical effects the adoption of an opinion would have in order to focus on those aspects of the opinion that might hold up to scientific inquiry.

Recall that the pragmatic maxim at its most general is a statement about what regulation *does*. It supposes that if our aim is success in a practice, that the most general regulative principle is to restrict our engagement in the practice to those actions that *might* be successful. The pragmatic maxim is simply a claim that we regulate inquiry by considering the possible differences in action that would be accountable to scientific practice.

If the pragmatic maxim is going to be controversial it will be in how it enforces the condition on what 'might' be successful — a condition on what, as I've put it, it takes to be accountable to scientific practice. Insofar as the pragmatic maxim can be mistaken it can only be on account of this regulative restriction it enforces. A refined version of the pragmatic maxim may, for example, be too restrictive on what it takes for a possibility to be accountable to scientific practice and so cut off possibilities that are scientifically appropriate. Or a refined version of the maxim may not be restrictive enough and allow the entertaining of some possibilities that are not scientifically appropriate.

As I've argued here, however, the only assumption so far that Peirce makes is that what is accountable to scientific practice must come down to a potential difference in action. Peirce's use of 'differences in practice' and 'potential practical consequences' captures these possible differences in behavior that are capable of being accountable to scientific practice. Given such a minimal assumption about action and scientific practice, I take it that the pragmatic maxim as discussed so far does not yet suffer from these potential problems.

The pragmatic maxim is not motivated by a bold claim about practical consequences, meaning, or truth. It is rather motivated by a much more straightforward scientific demand.

The pragmatic maxim follows from supposing that our actions, including the inquiry we engage in, be accountable to scientific practice. The maxim suggest that the opinions we entertain during inquiry be regulated by considerations of possible differences in action.

This reading is in accord with Peirce's later writings where he is explicit that the pragmatic maxim serves to restrict the opinions we entertain during inquiry to those that may have scientific purport. Referring back to his use of 'conception' in his original derivation, he writes that this use "was to show that [he] was speaking of meaning in no other sense than that of intellectual purport"[17] He continues:

> I understand pragmatism to be a method of ascertaining the meanings, not of all ideas, but only of what I call 'intellectual concepts,' that is to say, of those upon the structure of which, arguments concerning objective fact may hinge. [CP 5:467]

The passage reiterates that the pragmatic maxim for Peirce is restricted to what I have called opinions, and that this restriction is motivated by what Peirce takes to be the part of the belief that is accountable to scientific practice.

This serves as an initial characterization of the pragmatic maxim. The above considerations situate the pragmatic maxim as a regulative commitment of scientific inquiry. The pragmatic maxim suggests we regulate our opinions during inquiry by considering the different modes of action to which they would give rise. On the account given here the only assumptions upon which Peirce relies are i) that a belief establishes a mode of action that is accountable to scientific practice, and ii) that the result of inquiry will likewise ultimately be held accountable to the belief and mode of action that it establishes.

I turn now towards extending this characterization of the maxim. Reflecting again on the original derivation of the maxim, Peirce writes in 1904:

> The word *pragmatism* was invented to express a certain maxim of logic, which, as was shown at its first enouncement, involves a whole system of philosophy.

[17] This is affirmed elsewhere, such as where Peirce writes: "I make pragmatism to be a mere maxim of logic instead of a sublime principle of speculative philosophy" [CP 5:18].

> The maxim is intended to furnish a method for the analysis of concepts. [CP 8:191]

I now turn towards this version of the maxim intended to furnish a method for the analysis of concepts and that involves a whole system of philosophy. The result, while it may not serve as a characterization of the whole system of philosophy that Peirce refers, suffices as a preliminary characterization of Peircean pragmatism.

2.4 Refine and Defend the Pragmatic Maxim, pt. 2: Method of Inquiry

The pragmatic maxim is a regulative commitment of scientific inquiry. The pragmatic maxim suggests we regulate our opinions by considering the different modes of action for which they would give rise. The preliminary defense of this claim in the last section was quite minimal. It suggested that because belief establishes a mode of action, and because the result of inquiry is a belief, that inquiry also be guided by considerations of possible differences in action. I refine this account here and begin by offering a more detailed look at Peirce's conception of belief and a more detailed look at Peirce's conception of a mode of action. The discussion in the last section offered little for how this regulation can be accomplished. Peirce goes on to suggest a method of inquiry for how this can be done. The method, at least as I describe it here in the second half of this sections, rests on Peirce's theory of judgment. I take this to be Peirce's best option for defending the pragmatic maxim. Peirce's theory of judgment is substantial and I take it to be one of — if not *the* — most significant aspects of Peirce's philosophy. I do not defend this claim or summarize Peirce's whole theory of judgment here, however, but rather restrict discussion to the aspects of judgment that are most directly connected to modes of action and an individual's behavior. The inclusion of Peirce's theory of judgment demonstrates how the pragmatic maxim offers both a theory of meaning and a theory of inquiry. As a result, I suggest that the pragmatic maxim and Peircean pragmatism are best characterized as

offering a method of reasoning.

2.4.1 Belief and Action (again)

Peirce takes the meaning of a belief to be the particular mode of action that it establishes. Peirce takes this notion of belief to be held by the experimentalist. In regards to an experimentalist's conceptions, Peirce writes:

> [The experimentalist's] disposition is to think of everything just as everything is thought of in the laboratory, that is, as a question of experimentation. . . . when you have found, or ideally constructed upon a basis of observation, the typical experimentalist, you will find that whatever assertion you may make to him, he will either understand as meaning that if a given prescription for an experiment ever can be and ever is carried out in act, an experience of a given description will result, or else he will see no sense at all in what you say. [CP 5:411]

Peirce offers another example of the experimentalist's attitude when he discusses the chemist's conception of a substance:[18]

> We must dismiss the idea that the occult state of things (be it a relation among atoms or something else), which constitutes the reality of a diamond's hardness can possibly consist in anything but in the truth of a general conditional proposition. For to what else does the entire teaching of chemistry relate except to the 'behavior' of different possible kinds of material substance? And in what does that behavior consist except that if a substance of a certain kind should be exposed to an agency of a certain kind, a certain kind of sensible result would ensue, according to our experiences hitherto. As for the pragmaticist, it is precisely his position that nothing else than this can be so much as meant by saying that an object possesses a character. [CP 5:457]

[18] Another passage can be found in [CP 7:340].

Peirce applies the experimentalist attitude to the notion of belief. Peirce writes:

> As a pragmaticist I hold a belief to be a determination of a person such that under certain conceivable experiential circumstances he would be led by it to act in a certain way... [MS[R] 200:91]

Two other passages summarize the point:

> [Belief] is a general law of action, such that on a certain general kind of occasion a man will be more or less apt to act in a certain general way. [CP 2:148]

And,

> Belief is an intelligent habit upon which we shall act when occasion presents itself. [CP 2:435]

The result, as I put it, is that belief establishes a mode of action.[19] Belief entails that the believer would exhibit certain behavior under specified conditions.

Finally, the pragmatic maxim follows from applying the experimentalist's attitude to every conception of thought. Referring in the passage below to the experimentalist's attitude, Peirce is explicit about the point:

> Endeavoring, as a man of that type naturally would, to formulate what he so approved, he framed the theory that a conception, that is, the rational purport of a word or other expression, lies exclusively in its conceivable bearing upon the conduct of life; so that, since obviously nothing that might not result from experiment can have any direct bearing upon conduct, if one can define accurately all the conceivable experimental phenomena which the affirmation or denial of a concept could imply, one will have therein a complete definition of the concept, and there is absolutely nothing more in it. For this doctrine he invented the name pragmatism. [CP 5:412]

[19] Following, for example, use in [EP1: 129-130].

And elsewhere:

> . . . experimental results are the only results that can affect human conduct. . . . Whenever a man acts purposively, he acts under a belief in some experimental phenomenon. Consequently, the sum of the experimental phenomena that a proposition implies makes up its entire bearing upon human conduct. [CP 5:427]

Now we have arrived back at the original version of the pragmatic maxim, given here in its original context as the pragmatic grade of clarity:

> Consider what effects, that might conceivably have practical bearings, we conceive the object of our conception to have. Then, our conception of these effects is the whole of our conception of the object. [EP 1:132]

The maxim asks us to look at all the ways a conception of an object may influence our behavior. The pragmatic grade's emphasis on practical effects asks us to restrict our opinion's about an object to those that would make a conceivable difference in our behavior — it is to restrict our attention to all the ways we conceive that the object might behave. This in turn allows us to begin to test our conception against experience.

In the original derivation in 'How to Make Our Ideas Clear,' Peirce suggests in places that the pragmatic grade of clarity just is the experimentalist's conception. When discussing what we mean by calling an object 'hard,' Peirce writes:

> Let us ask what we mean by calling an object *hard*. Evidently that it will not be scratched by many other substances. The whole conception of this quality, as of every other, lies in its conceived effects. There is absolutely no difference between a hard and soft thing so long as they are not brought to the test. [EP 1:132]

In this passage Peirce passes back and forth between the pragmatic grade and the experimentalist's conception. In some of the passages above he does not yet distinguish the

regulative function that the pragmatic grade serves. By restricting our attention to all the ways that we conceive that an object might behave, we begin to make our conception accountable to scientific practice. The properties we conceive an object to have are those that can go on to be tested. The pragmatic maxim, now in its role as the third grade of clarity, is used to regulate the opinions we entertain to those that may be scientifically appropriate.

It is more accurate to say that the pragmatic grade is the preliminary grade that leads us to the experimentalist's conception. Because the experimentalist's and resulting scientific conception is not yet complete, it may be more accurate still to say that the pragmatic grade directs us towards what the scientific conception would be. Again, the pragmatic grade regulates inquiry into the part of conception that is scientifically appropriate. The pragmatic grade regulates inquiry into what the scientific grade would be. The emphasis on any *conceivable* practical effect captures this difference and the regulative role the maxim serves. The conceivable effects we envision may or may not be those that are scientifically appropriate, but conceiving them and their practical effects is the first step in regulating our opinions towards those that might be scientifically appropriate. The pragmatic grade of clarity is to begin to conceive of the object by how it might behave — it is to begin to conceive of the behavior of the object in a way where it could be put to the test.

It is only after Peirce recognizes and emphasizes the regulative role the maxim serves that he is explicit about the difference. The key to the pragmatic grade of clarity, as Peirce would come to recognize and as supported by discussion throughout this chapter, is that the pragmatic grade regulates our inquiry into the scientific grade. The pragmatic grade regulates inquiry by restricting the opinions we entertain to those that Peirce thinks may be accountable to scientific practice.

2.4.2 Regulating Opinions (again): Belief, Judgment, and a Method of Inquiry

The above account helps us refine the notion of belief and situate the pragmatic maxim as a regulative commitment of what Peirce takes to be scientific inquiry. The result, as

I put it, is that belief establishes a mode of action. The pragmatic maxim directs an inquirer towards testing a conception's conceivable experiential effects. To fully carry out this project we need to include a logical analysis of the conception. Belief entails that the believer would exhibit certain behavior in specified conditions. The logical analysis allows us to begin to determine what these certain behaviors and specified conditions are.

Recall that Peirce uses the term *inquiry* to designate the starting of a question in thought and its resolution. Peirce supposes the result of inquiry to be a belief that establishes a mode of action. To see the rest of Peirce's position we need to go one step further. Peirce supposes that the result of inquiry is not simply a belief but is also a *judgment*. This begins simply as an assumption. It is defended as a regulative commitment in order for inquiry to continue and have a chance at success. While it begins simply as a commitment, it can seek affirmation as it continues to be successful.[20] This move is what allows Peirce ultimately to help himself to logical considerations within inquiry and to achieve his purported synthesis of logic with scientific practice.[21] In taking the result of inquiry to be a judgment, Peirce assume that the resulting belief can be represented by a series of inferences. The quote at the beginning of Section 3.1 referenced the connection to judgment:

> ...it is a mere question of words whether we define belief as that judgment which is accompanied by [a peculiar feeling of conviction], or as that judgment from which a man will act. [EP 1:22]

Peirce's theory of judgment helps refine the example above. It suggests a means for determining the content of a judgment and the mode of action the judgment in particular establishes.

[20] How such an assumption can be affirmed as inquiry continues is addressed in the next chapter.

[21] This purported synthesis arises when Peirce develops the three types of inference — hypothetic (or abductive) inference, deductive inference, and inductive inference — and situates each within scientific practice. Science, according to Peirce, is the practice that develops and tests these types of inferences. Whether this suffices for a characterization of scientific practice as it is understood in contemporary terms is a further question. I go on to discuss these type of inferences in Chapter 3.

Peirce supposes that when an individual forms a judgment the individual forms an expectation based upon certain further considerations. Take, for example, an individual who judges an object to be a hard diamond. Peirce describes the content of the judgment as "a sort of composite photograph [that] appears in [the individual's] imagination" [CP 5:542]. Peirce recognizes that the individual does not simply intuit the object to be diamond, but rather that the individual *infers* the object under consideration to be a diamond. The individual may have judged, for example, based on the object appearing to be a mineral, to have an octahedral structure, and to look more or less like what past experiences of diamonds suggest. These inferences are also part of the 'composite photograph' that Peirce references above.

Peirce takes the conclusion of a judgment to be represented logically by an expectation that attributes a *character* to an *object*.[22] Take again the judgment that a diamond is hard. The judgment in this case is to expect hard when one encounters the object diamond.[23] The object in this case is 'a diamond' and the attributed character is 'hard.' The character captures what to expect, while the object captures the conditions to expect it.

Let me extend this introduction to Peirce's theory of judgment, and its relation to action in particular, in terms of an example found in 'How to Make Our Ideas Clear.' The example suggests a preliminary method for clarifying opinions and for connecting an individual's opinions to a mode of action. In regards to the clarity of an idea, Peirce writes:

> A clear idea is defined as one which is so apprehended that it will be recognized wherever it is met with, and so that no other will be mistaken for it. [EP 1:125]

Peirce goes on in 'How to Make Our Ideas Clear' to dismiss several logician's attempts

[22] When discussing hypotheses and evaluating them in 'Some Consequences Concerning Certain Faculties, Peirce writes that "[the] question, like every other, is whether certain objects have certain characters" [EP 1:32]. The plurality here is important. I will discuss it more below. The point is similar to the logical notion that a proposition attributes a predicate to a subject. See discussion in [EP 1:2 & 4], and differences in [EP 2:20].

[23] As the formation of an expectation, a judgment involves both what to expect and when to expect it. Peirce writes: "Every belief expresses both *what* is believed and *of what* it is believed" [CP 5:542].

to elaborate on this notion clarity. I take it, however, that he does not disagree with the notion of clarity above.[24] The definition of a clear apprehension above suggests a means of linking clear (and so also confused) opinions with behavior. It suggests that the clearness of apprehension of an object can be tested by whether and to what extent an individual *recognizes* an object when it is present.

By combining these suppositions about judgment with the definition of clear apprehension above, the Peircean pragmatist has the beginnings of a method for linking a judgment with the mode of action it establishes. Let's return to the diamond example, and restrict our focus for now to the content of the *object* that is represented in the judgment. Does the individual in this case act on the same expectation if the object under consideration were slightly different? Does, for example, the individual still take the object under consideration to be a diamond if the diamond were in its rough unpolished form? If it is the case that the individual does so and expects the object to behave accordingly, then this is a sign that the content of the original judgment included these considerations. If the individual does not do so, and so fails to show signs of recognizing the object, then this as a sign that the content of the original judgment did not include these considerations.

Let us now turn towards the content of the *character* that is represented in the judgment. Does the individual recognize the object's hardness when put through different tests? Does the individual recognize, for example, how the diamond would respond when scratched by various other materials? Again if the individual is unsurprised by the results — and in fact shows signs of expecting them — then this is a sign that the content of the judgment included these considerations. If the individual is surprised by the results, or indeed shows no signs of expecting or recognizing them at all, then this is a sign that the content of the judgment did not include these expectations.

This account of judgment suggests how the content of a judgment corresponds with a mode of action. It suggests that the meaning of a judgment that an individual makes is captured by how the individual would behave in differing conditions. By observing how

[24]Peirce does acknowledge that this notion of clarity would require perspicuity of thought rarely seen, but I do not take that as a sign against it. He furthermore goes on to suggest that some ideas can be made (or likely are) perfectly clear in this way. See [EP 1: 136 & 140].

the individual would behave in different conditions we can begin to determine the object and attributed character in a judgment. The addition of the logical analysis and the theory of judgment allows us to begin to test the content of a belief against different behaviors. Whether and to what extent an individual's behavior and beliefs can be represented by a judgment is ultimately a further empirical question. At the beginning of inquiry, Peirce defends this as a commitment to keep inquiry going in order to come to understand an individual's behavior. In the next chapter I discuss how Peirce thinks such an commitment can be affirmed as inquiry continues.

Let me summarize where we stand. In the last section I introduced a supposition that belief establishes a mode of action. This was sufficient in the last section to give a preliminary defense of the pragmatic maxim. I argued that the pragmatic maxim suggests that inquiry too be guided by considerations regarding the establishment of a mode of action.

Given Peirce's theory of judgment we can now refine this account. Inquiry, according to Peirce, consists in making judgments. Peirce suggests how judgments in turn establish different modes of action. The content of a judgment can be represented as a set of possible behaviors that Peirce takes to be accountable to scientific practice. I give a detailed account of how this works in the next chapter. In the meantime, the important point is that Peirce's argument in favor of the pragmatic maxim is more than a suggestion that inquiry be guided by differences in modes of action — he goes on to suggest a method for how it can be done.

2.5 The Continuity of Explanation

The pragmatic maxim suggests that the opinions an inquirer entertains be restricted to considerations of possible differences in modes of action. These possible differences in modes of action are differences that are at least potentially accountable to scientific practice. The pragmatic maxim, Peirce suggests, regulates scientific inquiry.

In the last section I refined this account by appealing to aspects of Peirce's theory of judgment. Peirce no longer simply suggests that inquiry be guided by possible differences

in modes of action but begins to suggest a method for how it can be done. With Peirce's theory of judgment we can see how the pragmatic maxim offers a method for determining the content of a belief. A judgment consists in attributing a character to an object. The object and attributed character in the judgment correspond with what to expect in experience and when to expect it. Both, furthermore, can be tested in the course of experience. By combining these suppositions about judgment with the definition of clear apprehension above, the Peircean pragmatist has the beginnings of a method for linking a judgment with the mode of action it establishes and for testing the judgment against experience. On this account inquiry is accountable to scientific practice because every judgment entails consequences for action that are in turn accountable to scientific practice.

The method presented in the last section can be summarized by what I call the Continuity of Explanation. The *Continuity of Explanation* (CE) *holds that every judgment entails consequences for action that are accountable to scientific inquiry.* According to the Continuity of Explanation we cannot separate a judgment from related actions about how an individual would behave. Judgment is accountable to scientific inquiry because it establishes a mode of action which in turn is accountable to scientific inquiry.

On the one hand the Continuity of Explanation is simply a refinement of the pragmatic maxim found in Section 3. There Peirce supposed that the result of inquiry is a belief, which establishes a mode of action. The pragmatic maxim was offered as a suggestion that we regulate the opinions we entertain during inquiry by considering the mode of action that they would establish. The picture is simply refined by suggesting that inquiry now consists in making judgments that establish a mode of action.

On the other hand, the addition of Peirce's theory of judgment allows us to see the pragmatic maxim as a theory or meaning and a theory of inquiry. The inclusion of a theory of judgment allows us to characterize the content of a belief, and the content of the object and attributed character, and to begin to test them in the course of experience. The Continuity of Explanation still serves a regulative function. It is a regulative commitment for engaging in scientific inquiry as Peirce sees it. It suggests that every judgment entails consequences for action that are accountable to scientific practice.

In offering both a theory of meaning and a theory of inquiry, I want to suggest that Peircean pragmatism offers a *method of reasoning*. The Continuity of Explanation allows us to reason about concepts while preserving our ability to recognize the concept when it is present. The direct benefit is that we preserve the conditions for testing the judgment. It allows us to trace the effects of a belief in such a way that we preserve the experiential consequences that would follow from such behavior. The result is the pragmatic elucidation of belief. It is method for refining the meaning of our thoughts and whether the content is affirmed in experience. It suggests not simply that inquiry be regulated by considerations of possible differences in modes of action, but suggests a method for how such inquiry can proceed.

Let me give several examples of the Continuity of Explanation at work. I'll start with the diamond example, and then will show how the CE applies to other possibilities as well. Take the scenario where I judge the object before me to be a diamond. According to the CE this judgment entails consequences for action that are accountable to scientific inquiry. If I judge the object present before me to be a diamond, then I can presumably begin to question the content of that judgment: What is meant by diamond? And why did I judge this object to be a diamond? Though posing these questions may seem innocuous enough, they capture the key feature of Peirce's theory of judgment elaborated in Section 2.4.2. The first question yields consequences for how I expect the diamond to behave and so also how I behave towards the diamond, while the second yields consequences for when I expect that behavior. In each case the response to these questions, following the Continuity of Explanation, yields consequences for action. The content of the judgment yields consequences for action that are accountable to scientific inquiry. The CE is the underlying commitment upon which reasoning about these consequences relies.

The Continuity of Explanation can also be applied to other possibilities. Perhaps, I judge that the object before me only seems to be a diamond and that it is deceptively something else. The CE again suggests that I begin to question the content of the judgment: What is meant by 'something else'? And why did I judge the object in this case to be this 'something else'? Perhaps I judge the object to be cubic zirconia, a synthesized material with properties similar to diamond. How do I expect cubic zirconia to behave and, similarly, how would I behave towards it? Responding to this question yields consequences for action

that would likewise be accountable to scientific inquiry. Why in this case did I judge the object to be a cubic zirconia? Responding to this question likewise yields consequences for when to expect such behavior.

Perhaps the 'something else' is more extra-ordinary (— a deception from an evil-demon perhaps?). In this case the CE still nonetheless suggests reasoning about the consequences that such a conception would have in experience. In applying the CE to each possibility and asking these questions about the content of the judgment we can begin to trace out the differences in behavior that would be the result of each judgment. If a difference is found, then we can presumably observe which behavior holds. If no difference is found, then we can question whether the content of the judgment differs in some scientifically meaningful way at all. The CE in each case captures a commitment towards reasoning that yields consequences for action that are potentially accountable to scientific inquiry. The CE regulates scientific inquiry.

The Continuity of Explanation serves as a characterization of Peircean pragmatism. It is a distillation of the maxim when taken as a regulative commitment for scientific inquiry and refined through Peirce's theory of judgment. The Continuity of Explanation serves as the characterization of Peircean pragmatism upon which the rest of the thesis is based. I refine the Continuity of Explanation in the next chapter, where I also go on to apply it towards understanding an individual's behavior. The result is a direct connection between the method of reasoning given by the Continuity of Explanation and certain reasonable behavior that follows from it.

2.6 Conclusion

The pragmatic maxim, for Peirce, regulates scientific inquiry. It places a restriction on the type of opinions that can be considered during inquiry to those opinions that Peirce thinks may, at least potentially, be accountable to scientific practice. More than simply being regulative principle, I showed in Section 3 how the pragmatic maxim also suggests a method for engaging in scientific inquiry. The method supposes that inquiry consists in

making judgments, and suggests in turn that judgments can be accountable to scientific practice. This method, I argued, is captured by what I call the Continuity of Explanation. The *Continuity of Explanation* (CE) *assumes that every judgment entails consequences for action that are accountable to scientific practice.* The Continuity of Explanation serves as a characterization of the pragmatic maxim. I have argued that it is a distillation of the pragmatic maxim taken as a regulative commitment for scientific inquiry and refined through Peirce's theory of judgment. Inquiry is accountable to scientific practice because every judgment entails consequences for action that are, in turn, accountable to scientific practice.

I show in the rest of the thesis that the Continuity of Explanation suffices as a characterization of Peircean pragmatism. Most significant for the next chapter, however, is that the CE has important implications for individual behavior. In the next chapter I offer a more detailed example of the CE at work. I apply the CE towards understanding an individual's actions. I elaborate and defend, in short, a Peircean theory of action.

Chapter 3

The Continuity of Explanation Applied to an Individual's Behavior

In the last chapter I introduced a characterization of Peircean pragmatism based on what I called the Continuity of Explanation. The *Continuity of Explanation* (CE) *is the commitment that every judgment entails consequences for action that are accountable to scientific inquiry.* I offered the CE as a distillation of the pragmatic maxim taken as a regulative commitment for scientific inquiry and refined through Peirce's theory of judgment. The CE is the regulative commitment of scientific inquiry. In this chapter, I show how the CE can be applied towards making sense of an individual's actions. The result is a method for understanding an individual's behavior.

I set aside for the time being discussions of behaviors that are radically foreign to us such as the behaviors of individual's from radically different cultures and social practices. Some Peirce scholars, mostly in the context of potential limitations in Peirce's notion of a community of inquirers, have wondered whether Peirce's account can address these problems.[1] The question is whether the community of inquirer's can make sense of those

[1]See, for example, [11].

outside the community. Some, such as Massecar [19, p. 12], seem to respond in the negative. I think that Peirce's account has more going for it than these views suggest, but I will save that discussion for another day. Presently I leave it up to the reader to apply the method discussed below for making and evaluating inferences and to decide for themselves the extent that the method can be applied.

I begin by returning to the Smith example and showing how the Continuity of Explanation can be applied towards understanding Smith's actions. Peirce takes any judgment about Smith's actions to assume more general features about Smith and Smith's behavior. These general features and behaviors are, according to Peirce, accountable to scientific inquiry. If the presumed features and behaviors are affirmed by scientific inquiry, then the judgment is a good one. If not, then the judgment is mistaken.

In demonstrating how the Continuity of Explanation applies towards makings sense of an individual's actions I go some way towards clarifying and defending the CE. In particular, I show how the CE i) follows from a few simple assumptions that we make when trying to understand Smith's behavior, and ii) captures the commitments and methods of the three types of inference — abductive, deductive, and inductive inferences — that Peirce takes to be employed in scientific reasoning. The three types correspond with coming up with a hypothesis, deducing the consequences that would follow from the hypothesis, and observing through induction whether the consequences (and so the hypothesis) are affirmed. Of the three types, Peirce writes:

> Abduction furnishes all our ideas concerning real things, beyond what are given in perception, but is mere conjecture, without probative force. Deduction is certain but relates only to ideal objects. Induction gives us the only approach to certainty concerning the real that we can have. [CP 8:209]

The weight Peirce gives to the study of these three types of inference cannot be overemphasized. Peirce not only finds the three types of inference affirmed over and over in scientific inquiry, but takes Peircean pragmatism (what Peirce refers to below as *pragmaticism*, a term he used to distinguish his version from other pragmatists) to consist in their development and deployment. Peirce continues the above passage:

> In forty years of diligent study of arguments, I have never found one which did not consist of those elements. The successes of modern science ought to convince us that induction is the only capable imperator of truth-seeking. Now pragmaticism is simply the doctrine that the inductive method is the only essential to the ascertainment of the intellectual purport of any symbol.[2]

The CE captures the general commitments and methods of the three types of reasoning that Peirce finds employed in scientific inquiry.

In the final two sections of this chapter I continue to develop the claim that the CE offers a method for understanding an individual's behavior. I show how the CE allows us to differentiate deliberate behavior and intentional (i.e. purposive) behavior, as well as the reasons upon which an individual acts. What I take to be most interesting about Peirce's view is that in each case differentiation rest on aspects of his theory of judgment. Each type of behavior can be distinguished by the judgments upon which it is based.

My concern in the last two sections is to show that Peirce offers a response to the questions of differentiating actions, agency, and the relation between actions and reasons. I do not compare Peirce's responses to contemporary theories. I leave that discussion for another day. My aim is to show that the CE offers a method for understanding an individual's behavior — a method that, as I will show in the final chapter of the thesis, has important implications for developing more reasonable behavior.

3.1 Abduction: Committing to a Practice

> In my endeavour to meet the exigencies of verifiable thought in science, I have long ago come to be guided by this maxim: that as long as it is *practically*

[2]He writes elsewhere: "I say that these three are the only elementary modes of reasoning there are. I am convinced of it both a priori and a posteriori" [CP 8:209]. And: "Thus the validity of induction depends upon the necessary relation between the general and the singular. It is precisely this which is the support of Pragmatism" [CP 5:170].

> *certain that we cannot* directly, nor with much accuracy even indirectly, observe what passes in the consciousness of any other person, while it is far from certain that we can do so. . . even in the case of what shoots through our own minds, it is much safer to define all mental characters as far as possible in terms of their outward manifestations. . . That maxim is, roughly speaking, the equivalent to the one that I used in 1871 to call the rule of "pragmatism." [EP 2:469]

Consider again the individual, Smith, whom we observe heating a metal sample and quenching the sample in oil. At the beginning it is not clear what Smith is doing. Smith may be acting aimlessly, for mere enjoyment, or with the goal in mind of heat treating the metal sample. With only a short observation we cannot be sure which of these alternatives holds.

Peirce takes each of the possibilities offered above to be potential hypotheses for Smith's behavior.[3] Peirce writes of hypothesis: "Any proposition added to observed facts, tending to make them applicable in any way to other circumstances than those under which they were observed, may be called a hypothesis" [CP 6:524].[4] The beginnings of investigation consists in the invention, entertainment, and eventual selection of a hypothesis. This step is what Peirce refers to as *abduction*. Peirce takes the culmination of abductive inference to be a *potential explanation* of Smith's behavior. Peirce writes of this stage:

> At length a conjecture arises that furnishes a possible Explanation, . . . On account of this Explanation, the inquirer is led to regard his conjecture, or hypothesis, with favor. As I phrase it, he provisionally holds it to be "Plausible"; this acceptance ranges in different cases — and reasonably so — from a mere expression of it in the interrogative mood, as a question meriting attention and

[3]Peirce defends the significance of hypothetic reasoning to our practical life in [CP 6:522-525] and [CP 6:485]. Peirce defends the adoption of a hypothesis as an act of inference in [CP 2:776], [CP 7:202] & [CP 7:220]. Peirce suggests that hypotheses can be right or wrong, that the adoption of a hypothesis involves a method, and that there are important considerations of economy when deciding which hypothesis to adopt. Each suggests a hypothesis is an inference.

[4]See also [CP 7:202].

> reply, up through all appraisals of Plausibility, to uncontrollable inclination to believe. [CP 6:469]

Abduction, as Peirce puts it, is the preparatory stage in investigation [CP 7:218]. Here is Peirce writing on explanation:

> Upon finding himself confronted with a phenomenon. . . he looks over its features and notices some remarkable character or relation among them, which he at once recognizes as being characteristic of some conception with which his mind is already stored, so that a theory is suggested which would explain (that is, render necessary) that which is surprising in the phenomena. [CP 2:776]

Abduction furnishes the inquirer with the initial conceptions and potential experiential consequences that (as we'll see in the next subsection) induction goes on to either affirm or deny [CP 2:776].[5]

The above account gives a broad overview of the early stage of investigation. The Peircean investigator invents, entertains, and eventually selects a hypothesis that serves to explain the behavior in question. In this chapter I want to develop this account by appealing to Peirce's theory of judgment. According to Peirce, a hypothesis about Smith's behavior is a *potential judgment* about Smith's behavior. It is based on further inferences. Each potential judgment assumes features about Smith and about Smith's behavior more generally. Peirce recognizes that these general features can in turn go on to be tested in scientific investigation. The account of judgment, I argue here, supports and extends the broad account given above. Peirce's theory of judgment allows us to see the connection between a hypothesis, which begins merely as an assumption, and an explanation, which can in turn begin to be evaluated.

I begin by looking at an initial indeterminacy in judgment. This initial indeterminacy accounts for the guesswork at the start of inquiry.

[5]Peirce writes elsewhere: "[Abduction] is the first step of scientific reasoning, as induction is the concluding step" [CP 7:218].

Peirce offers an elaboration of this indeterminacy in 'The Doctrine of Chances' (1878). Scientific investigation, Peirce argues, can conclude little from a limited sampling of an event. Peirce offers the example of a scientist tossing a die. Peirce claims that from the single toss very little can be concluded about the nature of the die. The argument is simple. From a single observation of a die being tossed we cannot yet know whether the die is fair or weighted. A die showing '3' in one instance may continue to show '3' more often than not in the future, or it may continue to show '3' as likely as any other number. With only a single instance who can say whether the number showing on the face is a sign of the die's fairness, or whether it is a sign of the die's being loaded? Observing one toss is insufficient to determine whether the die is weighted or fair.

The problem is not resolved (at least without some further information) with repeated tosses of the die. Imagine the die continues to show '3' on nine subsequent tosses. Is the series of ten tosses sufficient for the scientist to distinguish between the die as weighted or fair? Peirce recognizes that the scientist would still refrain from drawing a definitive conclusion. A fair die, after all, has a slight chance of showing a '3' on ten sequential tosses. Peirce's scientist would take this possibility into account. A limited sampling is insufficient to determine whether the die is weighted or fair.

Writing of the die example again in 1908, Peirce clarifies the point. The problem with a limited sampling is that it is insufficient to determine the *habit* or *tendency* of the die. A fair die may temporarily show a seemingly weighted series of results. Likewise an unfair die may temporarily show a seemingly fair series of results. Peirce's scientist would take these possibilities into account. A limited sampling is insufficient to determine the habit or tendency of the die.

The example has important implications for making sense of an individual's behavior. With a limited sampling we do not know what habit the individual's actions reflect. We cannot judge from a single observation of an individual whether the individual's action is a common occurrence or is extremely rare. We cannot tell whether the habit has developed over a long period of time or is relatively new, or whether and to what extent the habit is still developing. With only a short observation we cannot yet distinguish between these possibilities.

Peirce is explicit at one point about the connection between the die example and an individual's behavior. In clarifying the meaning of the statement that a die has a certain probability (i.e. that a die has a certain habit or tendency) of yielding certain results, Peirce writes:

> The statement means that the die has a certain "would-be"; and to say that a die has a "would-be" is to say that it has a property, quite analogous to any habit that a man might have. Only the "would-be" of the die is presumably as much simpler and more definite than the man's habit as the die's homogeneous composition and cubical shape is simpler than the nature of the man's nervous system and soul. [CP 2:664]

In both instances we attribute a certain habit or tendency — a would-be, as Peirce writes — to the object. In both cases the problem of determining the meaning of an action comes down to an inference from a limited sample.

There are three points I want to make explicit about the implications of the die example for making sense of an individual's behavior. The first point is that a judgment about the individual's behavior rests on supposing some habit or tendency. Peirce writes:

> Thus, if wishing to test a die to see whether it is loaded (whether intentionally or not) I throw it say 900 times. If the different faces come up with as equal frequency as they could be expected to do, what can I infer? Only that as long as the habit or tendency of the die remains what it is, it will probably not bring the different faces up so unequally as to show decisively in 900 throws. That is, I base my inference on the assumption that there is some habit. [CP 8:361]

When making sense of an object's behavior, we suppose that there is some habit or tendency possessed by the object. A judgment about an individual is no different. A judgment about an individual's behavior supposes some more general habit or tendency.

The underlying regularity that our judgment assumes takes Smith to be acting in accord with more general behavioral tendencies. Our judgment assumes that Smith is acting in

accord with a more general *practice*. We take Smith to be engaged in the practice of aimless behavior, or acting for enjoyment, or heat treating a metal sample.

The second point I wish to make is that at the beginning of inquiry each potential judgment about an individual's behavior begins simply as a hypothesis that we make. This is a result, I argue here, of the initial indeterminacy that arises from a limited sampling. From a short observation we cannot initially be sure what general behavior an action reflects. We may initially take Smith to be acting with the goal in mind of heat treating the metal sample, or we may simply take Smith to be acting aimlessly, or for pleasure. Each potential judgment begins simply as a hypothesis.

Finally, the third point is that the assumed habit or tendency entails further consequences for Smith's behavior. If we take Smith to be heat treating the metal sample, for example, then this hypothesis would lead to further behaviors. Perhaps Smith will go on to use the hardened metal, or has a history of blacksmithing, and will otherwise demonstrate an understanding of the activity. If we take Smith to be acting for pleasure, then Smith would presumably show signs of enjoyment. Each assumption holds further consequences for Smith's behavior. An assumption about Smith's behavior is not taken to be disconnected from related phenomena. It is, on the contrary, taken to include further effects for the individual's behavior.

As with the initial defense of abduction given in the last chapter, these assumptions can initially be defended on regulative grounds. This should come as no surprise given that each potential judgment is a hypothesis — each of which, according to Peirce, is represented by an abductive inference — and so the more general features of abduction apply. We assume that the individual is engaged in a larger practice in order to try to make sense of the individual's behavior. We do not know at the start of inquiry whether or to what extent these assumptions will be affirmed as investigation continues. The assumptions are nonetheless appropriate at the start of investigation because such commitments are needed to continue investigation and for us to have a chance at being successful. Each of these assumptions — that with a short observation we are simply making a hypothesis, that Smith is engaged in a larger practice, and that this larger practice yields more general consequences for Smith's behavior — can initially be defended on regulative grounds.

Supposing that an individual is engaged in a more general practice situates the individual's actions in relation to other actions and possible practices. Peirce writes of explanation: "This is what we call explaining it, which always consists in supposing that the surprising facts that we have observed are only one part of a larger system of facts, of which the other part has not come within the field of our experience, which larger system, taken in its entirety, would present a certain character of reasonableness, that inclines us to accept the surmise as true, or likely" [CP 7:36].[6] A practice situates the individual's actions amongst a larger network of relations. Presuming that the individual is engaged in a larger practice, for Peirce, is to begin to *explain* Smith's actions.[7]

We have arrived at the continuity of explanation thesis in its most general form. The continuity of explanation thesis is the commitment that every judgment entails consequences for action that are accountable to scientific investigation. I argued that the continuity of explanation thesis is a regulative commitment of scientific investigation. Here I show how it is present in an embryonic form in abduction. The three points above — that forming a judgment about an individual's behavior is to form a hypothesis, that the hypothesis supposes that the individual is engaged in a larger practice, and that this larger practice yields more general consequences for Smith's behavior — capture the continuity of explanation thesis at its most general. At the start of inquiry these assumptions are defended on regulative grounds. They are regulative commitments of abductive reasoning. They are appropriate at the start of inquiry insofar as they are necessary to continue to engage in abductive reasoning and for abductive reasoning to have a chance at success. While these assumptions are initially defended on regulative grounds, I've argued above

[6] Two other passages may be helpful in understanding what Peirce means by explanation. In [CP 6:606], Peirce writes: "to explain a fact is to show that it is a necessary or, at least, a probable result from another fact, known or supposed." And, in [CP 6:469]: "At length a conjecture arises that furnishes a possible Explanation, by which I mean a syllogism exhibiting the surprising fact as necessarily consequent upon the circumstances of its occurrence together with the truth of the credible conjecture, as premisses."

[7] Peirce is also explicit at one point that abduction is defended on regulative grounds. He writes: "[Abductions] only justification is that its method is the only way in which there can be any hope of attaining a rational explanation" [CP 2:777].

that they can nonetheless be motivated by several straightforward assumptions about inquiry. The first, that forming a judgment about an individual's behavior is to form a hypothesis, follows from the initial epistemic indeterminacy at the start of investigation. That the hypothesis assumes a larger practice and that this larger practice involves more general consequences for the individual's behavior, both follow from assuming that we can continue to ask further questions about any potential hypothesis on offer. As we'll see below, these can be further motivated by Peirce's theory of judgment. While the continuity of explanation thesis is at first defended on regulative grounds, as we will see in the next section, we are well on our way towards refining this method and being able to determine the practice an individual is engaged in.

3.2 Determining a Practice

The continuity of explanation thesis can continue to be applied towards making sense of Smith's actions. In this section I highlight three consequences of applying the continuity of explanation thesis. Each leads to an important implication for making sense of an individual's behavior. The first is that a repeated application of the continuity of explanation thesis allows us to *refine* the meaning of the practice an individual might be engaged in. The second is that through continued refinement we can begin to *distinguish* the practice an individual might be engaged in. Finally, being able to distinguish a practice that an individual is engaged in leads us to be able to *affirm* whether and to what extent the individual is engaged in the practice. The result — that we can refine, distinguish, and affirm the practice that the individual is engaged in — is that the continuity of explanation thesis gives us a method for *determining* the practice an individual is engaged in.

These steps parallel the grades of apprehension discussed in the last chapter. Refining the meaning of a practice through the continuity of explanation thesis is to increase *familiarity* with the practice. Continuing to refine the meaning of a practice is to begin to differentiate that practice from related practice. The result is to begin to have a *distinct* apprehension of the practice. Continued differentiation leads to a *clear* apprehension where we can apprehend a practice whenever it is present

The steps also parallel the remaining types of inference that Peirce takes to be employed in scientific inquiry. In the present discussion the three types of inference correspond directly to i) postulating a practice (discussed in the previous section), ii) deducing the set of behavior that the practice would entail, and iii) observing, through induction, whether and to what extent an individual is engaged in the particular practice. The result of deduction is akin to increasing familiarity with a practice. It increases familiarity with a practice. Continued deduction give rise to a distinct understanding of a practice. Induction allows us to affirm whether an individual is engaged in the practice.

3.2.1 Refining a Practice Through Deduction

In the last section, I discussed several potential judgments for Smith's actions. We can ask further questions about each potential judgment, now taken to be a hypothesis, on offer. To see how this works let us return to the Smith example. What do we mean, for example, by "aimless", "purposive", or "acting for pleasure"? Purposive behavior presumably corresponds with signs of having some goal, aimless behavior with signs of lacking a goal, and pleasure with signs of some enjoyment. This refinement can continue. Let us focus, for instance, on the hypothesis that Smith is acting for enjoyment. If Smith enjoys forging and heating the metal sample, then there would be other related signs of such behavior. Signs of enjoyment would presumably be seen when Smith enjoys other activities that involve a forge, or heating metal, or fire. If Smith's actions are aimless then Smith may have a history of changing activities on a whim. Likewise if Smith engages in the practice with the goal of heat treating the metal sample, then Smith may show signs associated with reaching a goal, such as satisfaction upon completion, putting the result to use, or adopting a further goal.

In each case we can continue to trace out the consequences of the hypothesis and what behavior would follow if it were the case. When we refine a hypothesis we employ a second type of judgment: that of deduction. Deduction, for Peirce, involves tracing out the consequences of a hypothesis. Once we adopt a hypothesis through abduction, Peirce writes, the first thing that is to be done "will be to trace out its necessary and

probable experiential consequences. This step is deduction" [CP 7:203]. We reflect on what would follow if the hypothesis were true and the result is that certain phenomena, at least under certain conditions, ought to appear [CP 2:775]. Deduction, for Peirce, is idealized. "Deduction" Peirce writes, "does not lead to any positive knowledge at all, but only traces out the ideal consequences of hypotheses" [CP 7:207]. Talk of idealization may bring about unwanted associations. All that Peirce has in mind, however, is that deduction traces out the consequences of what is already contained in the hypothesis. Peirce writes: "This appears to be in harmony with Kant's view of deduction, namely, that it merely explicates what is implicitly asserted in the premises" [CP 7:204]. It is idealized only insofar as the initial hypothesis is idealized.

The Continuity of Explanation captures commitments and methods of deduction. The Continuity of Explanation is the commitment that every judgment entails consequences for action that are accountable to scientific investigation. The CE assumes we can continue to ask further questions about the explanation on offer, and that these refinements in turn correspond with differences in action that would be accountable to scientific investigation. In each case we are asking further questions about a hypothesis for Smith's behavior and trace out the consequences that would follow from it. This refinement involves deduction. The continuity of explanation thesis captures deduction at work.

3.2.2 Distinguishing a Practice (deduction continued)

The method above places no limit on the extent of this refinement. It's only limitation is the extent that the method can be applied. Continued refinement — at least it would seem, a point I discuss below — allows us to begin to *distinguish* the practice an individual might be engaged in.

To see this, notice that the set of behaviors needed to support and demonstrate aimless behavior above is different from the set of behaviors in which purposeful behavior consists. In one instance Smith happens to heat treat the metal sample. In the other instance Smith achieves a result that is both desired and expected. This difference entails further consequences for behavior. If Smith simply happens to heat-treat the sample then Smith

would presumably show signs of being unaware or surprised by the result. If Smith rather expects the result, then Smith would presumably show signs of expectation, perhaps signs of enjoyment for achieving a desired result, or would perhaps put the result to use and in so doing demonstrates an understanding of the hardening process. This example suggests that competing hypotheses would give rise to different sets of behavior. If this is the case, then the continuity of explanation thesis provides a means to differentiate competing practices.

There may seem to be a tension here. I suggested in the last section that at the start of inquiry the hypothesis we adopt is merely an assumption about an individual's behavior. At the start of inquiry I claimed that we could generate a host of possible explanations — and, I went so far to say, seemingly indistinguishable explanations— for Smith's behavior. Now I am suggesting, however, that through deduction and tracing out the consequences of a particular hypothesis, we can nonetheless refine and distinguish any one explanation for Smith's behavior. The tension is between the claim that explanations can be indistinguishable at the start of inquiry and yet distinguishable at the end of inquiry.

Using a Peircean phrase, we may say that while we may not be able to distinguish in the short term the practice that an agent is engaged in, such differentiation becomes possible *in the long run*. While a short observation (as argued in Section 3.1) is insufficient to distinguish which practice an individual is engaged in, a longer observation allows us to begin to differentiate these practices. Putting it another way, we may say that while at first we may not *locally* be able to distinguish between the behaviors of two competing practices, there will be a way *in general* to distinguish such behaviors. We have reason to think that in general some behavior would allow us to distinguish between them.

Let me defend this view that we can in general distinguish between competing hypotheses. Notice that in the course of experience some explanations of Smith's behavior begin to seem less plausible. It would certainly be remarkable if Smith stops engaging in the practice after hardening and tempering the sample, goes on to turn the sample into a kitchen knife that continually demonstrates its strength in use, and does so all the while acting without purpose. Similarly, how would we account for Smith's seeming to test and refine the method of heat treatment along the way? I take this to be part of Peirce's answer. Some competing hypotheses become less plausible over the course of experience.

I take Peirce's overall point, however, to be more subtle. As Peirce points out, measurements of plausibility — and even of probability, given the limitations of sampling discussed above — are not direct measures of verisimilitude.[8] In the case above, where Smith goes on to make and use a kitchen knife, someone may be adamant that Smith is (or could be) nonetheless acting aimlessly. According to Peirce, however, such a possibility in the long run would either be affirmed in experience or would lose all grounds for support. Let me explain. Take again the hypothesis that Smith is engaged in aimless behavior. Recall our presumption of related activity discussed in Section 3.1. If an individual's activity were aimless, we presumed that there would then be some further signs of such aimlessness. The individual would perhaps demonstrate aimless activity in the past (or some relevantly related activity) and if so we would be able to offer further support for why and under what conditions the individual had done so. Perhaps the individual routinely begins and ends activities on a whim, or is lackadaisical and fickle in their pursuits. Perhaps Smith has over time become tired and careless. If the behavior seems unique to this particular case, then there would presumably be further signs accounting for its uniqueness. Perhaps there are signs of a mental lapse, or the abrupt change in behavior can be accounted for by some new condition in experience. While the hypothesis of aimless behavior cannot be ruled out, continued observation and testing can rule out these *related* or *auxiliary activities*. In the case when the individual is not engaged in aimless behavior, continued observation and testing will supply fewer and fewer grounds to defend these auxiliary activities. An individual that continually demonstrates purposeful activity offers no such auxiliary support for the alternative hypothesis of aimless behavior. The auxiliary hypothesis is — like

[8]See an extended discussion of the difference between plausibility, probability, and verisimilitude as Peirce uses the terms in [CP 8:222-237] or [CP 2:662-667]. Plausibility is the type of assent that we attribute to abductive inference. Probability is a statistical or mathematical ratio employed in deduction. Recall that induction is (citing here the same passage from the beginning of the chapter) "the only approach to certainty concerning the real that we have" [CP 8:209]. Verisimilitude is the level of assent we attribute to an inductive conclusion. Probability can be derived from induction inferences, such as in the case of sampling (and so can be based on considerations of verisimilitude), but inferences based on probability are either abductive (i.e. they are new hypotheses) or deductive (i.e. they are mathematical idealizations).

a paper doubt — a paper hypothesis, a hypothesis lacking further support.[9] We therefore have reason to think that in the long run we can distinguish the practice that an individual engages in. We have good reason to suspect that when the set of behaviors are fully spelled out for competing practices, the corresponding behaviors will eventually be found to conflict or one of the competing practices will be found to be groundless.

As the set of behaviors that characterize a practice become more refined, the behavior of individuals engaged in different practices begins to be distinguished. Competing hypotheses that entail a different set of behaviors are *pragmatically distinguishable*. The continuity of explanation thesis offers a method to distinguish between competing practices.

[9]Peirce writes elsewhere: "Do you call it doubting to write down on a piece of paper that you doubt? If so, doubt has nothing to do with any serious business" [CP 5:416]. See also [CP 6:498], and especially [CP 2:265], where Peirce writes in regards to Descartes' method of doubt: "The initial skepticism [may] be mere self-deception, and not real doubt." For a doubt to be considered real for Peirce it must be accompanied by further effects on one's behavior that are accountable to scientific practice. It may be useful here to recall Peirce's distinction between belief and doubt from Chapter 2. There, doubt is characterized by a pause or hesitation in one's actions. Doubt is, Peirce writes, the lack or privation of a habit and corresponding mode of action [CP 5:417]. If a supposed doubt does not correspond with the erratic behavior associated with the privation of a mode of action then the doubt is not a real doubt. In this case the doubt is mere self-deception, or superficial, or merely imagined.

Also:

> It thus appears that it is one thing to question a proposition and quite another to doubt it. We can throw any proposition into the interrogative mood at will; but we can no more call up doubt than we can call up the feeling of hunger at will. What one does not doubt one cannot doubt, and it is only accidentally that attention can be drawn to it in a manner which suggests the idea that there might be a doubt. Thence comes a critical attitude, and finally, perhaps, a genuine doubt may arise.

3.2.3 Affirming a Practice Through Induction

I've suggested above that the continuity of explanation thesis allows us to refine and distinguish a practice. The continuity of explanation thesis also offers a means to *affirm* the practice an individual is engaged in. An individual who continues to act in accord with the set of behaviors distinct to a practice affirms their engagement in the practice.

This affirmation arises through induction. Induction, for Peirce, arises when an already formed hypothesis is tested against experience.[10] Peirce sometimes refers to induction more broadly as "the experimental testing of a theory" or as "experimental research".[11] Induction is the form of inference that induces assent to a theory [CP 5:590]. Through induction we begin to accept a hypothesis as being approximately true.

"When we get to the inductive stage what we are about is finding out how much like the truth our hypothesis is, that is, what proportion of its anticipations will be verified" [CP 2:775]. While this proportion need not always be a quantitative measurement, in the most straightforward cases it is.[12] The result in this case is a statistical ratio that approximates the proportion of the predictions that follow from a hypothesis that are affirmed in the course of experience.[13] "It measures," as Peirce writes elsewhere, "the degree of concordance of that theory with fact" [CP 5:145].

Given the limitations discussed in Section 3.1 above about the inferences that can be drawn from a limited sampling, Peirce cautions against interpreting the ratio that is the

[10]See passages in [CP 7:206] & [CP 2:775].

[11]See [CP 5:145] & [CP 8:209], respectively.

[12]Peirce often writes that the result of induction is the value of a quantity. See, for example, [CP 1:67], [CP 5:145], & [CP 5:194]. Peirce eventually distinguishes three types of induction: crude induction, qualitative induction, and quantitative induction [CP 2:755-760]. Crude induction is an induction from the particular to the universal. It rests on the presumption that future experience will not be utterly invariant from the past. Though important, it is the weakest form of induction, and it is unfortunate that it gets so much discussion at the neglect of the others.

[13]See [CP 2:775] & [CP 5:21].

result of induction as a direct measure of concordance between hypothesis and fact.[14] The die example illustrates the type of confidence that Peirce nonetheless takes induction to secure:[15]

> Suppose you go on throwing the die a great many times, and after each throw you divide the number of aces that have turned up by the whole number of throws so far. The quotient will be [the] result for the probability of throwing an ace with this die. You will get a new and amended, though not always a really improved, result after every throw. Now although the throws are purely fortuitous, so that to most questions about them only probable answers can be given, yet one thing will certainly happen. Namely, sooner or later, probably very soon, but it may be only very late, yet certainly at length, a time will come after which all your values for the probability of throwing an ace with this die will be correct in the first figure after the decimal point. A later time there will be after which all the successive determinations will be correct in the first two figures, and so on. You will never be certain that that time has come, but it certainly some time will have come. [CP 7:77]

The resulting ratio approximates how often a given sort of event would occur in the course of experience. The result only *indefinitely* approximates such a ratio, because our limitations in sampling — and think here of the fair coin having a chance of nonetheless showing a series of one-sided flips — precludes certainty that the ratio at any one time is an accurate representation of how the object would behave in general.

We have confidence, not necessarily in any one result of inductive inference (though sometimes, perhaps even often, the result of a series of inductive inferences is accurate), but in the inductive *method*. We have confidence that a persistent application of the method would converge, albeit indefinitely, on the correct result.[16] The result, we may say, leads to a *practical infallibility* in the *general habit or tendency* of the hypothesis being in accord with experience.[17] Peirce summarizes the point elsewhere:

[14] See also similar passages in [CP 2:777], [CP 7:207], & [CP 8:236].

[15] Peirce makes the same point on several other occasions. See [CP 2:758], [CP 2:780], & [CP 7:210].

[16] See [CP 2:269-70], [CP 2:775], [CP 5:145], [CP 5:350], [CP 6:40], & [CP 6:100].

[17] Peirce continues the passage above:

> The validity of induction is entirely different; for it is by no means certain that the conclusion actually drawn in any given case would turn out true in the majority of cases where precisely such a method was followed; but what is certain is that, in the majority of cases, the method would lead to *some* conclusion that was true, and that in the individual case in hand, if there is any error in the conclusion, that error will get corrected by simply persisting in the employment of the same method. The validity of an inductive argument consists, then, in the fact that it pursues a method which, if duly persisted in, must, in the very nature of things, lead to a result indefinitely approximating to the truth in the long run. [CP 2:781, emphasis in original]

We have confidence that the inductive method in the long run would continue to converge indefinitely on some general truth about the way things are.

Peirce finds induction to be well grounded. The inductive method, according to Peirce, depends on two assumptions. The first assumption is that parts make up and constitute the whole.[18] The second assumption is that induction rests on a means (even if it be a mere conceived means) of sampling. This is seen in the above account that rests on the assumption that enlarging the sample would change the resulting ratio so that it comes to

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> Now that which is necessarily inerrant may in a somewhat indefinite sense be fairly called infallible. Thus, a skillful use of fortuitous events will bring infallibly correct replies to an endless series of questions. This kind of infallibility, which may [be], for aught we know, not to say quite probably is, the infallibility of the instinct of animals, is certainly the only kind of infallibility that can be attributed to the results of science, inasmuch as we can so little know when the very truth is reached that even the second law of motion is at this moment under indictment. Moreover, when we come to subject the processes of science to criticism, we shall find it impossible to deny that a conditional form of this kind of infallibility must be attributed to science. [CP 7:77]

[18] See [CP 2:269], [CP 5:349], [CP 5:170], [CP 6:100], & [CP 6:526].

converge, albeit indefinitely, on the way things are [CP 2:709]. It rests on the assumption that sampling the parts in the long run would approximate the whole.[19]

Peirce's defense of induction ultimately, however, rests on regulative grounds. The considerations in the previous paragraph are simply assumptions until the intervening inquiry has had its say and come to an end. In the meantime they are defended as regulative commitments.

As one of the elements or kinds of judgment, induction is captured by the continuity of explanation thesis. Where deduction is employed to determine the consequences for action that follow (or would follow) from a judgment, induction is employed when determining whether those consequences are affirmed in experience. The result is a commitment that a habit or tendency is operative in the world [CP 5:171].

Summarizing the abductive, deductive, inductive inferences that Peirce takes to capture the different types of reasoning, and which Peirce takes to be employed in scientific investigation, Peirce writes:

> Abduction having suggested a theory, we employ deduction to deduce from that ideal theory a promiscuous variety of consequences to the effect that if we perform certain acts, we shall find ourselves confronted with certain experiences. We then proceed to try these experiments, and if the predictions of the theory are verified, we have a proportionate confidence that the experiments that remain to be tried will confirm the theory. [CP 8:209]

The CE Method captures the commitments and methods of abductive, deductive, and inductive reasoning. Peirce takes the the Continuity of Explanation, as I argued in the last chapter, to be the general commitment to scientific investigation. In the last section I showed how the Continuity of Explanation captures the commitments of abductive inference. In this section I complete the claim that the Continuity of Explanation is the general commitment to scientific inquiry by showing that the Continuity of Explanation captures

[19]Peirce emphasizes the importance of the long run for the meaning of probability in [CP 2:758], [CP 5:21] and [CP 5:349].

the commitments of deductive and inductive inference. The Continuity of Explanation is the method of reasoning that Peirce takes to be compatible with scientific investigation.

I introduced the Continuity of Explanation in Chapter 2 as the regulative commitment of scientific investigation. I went on to argue that the Continuity of Explanation also offers a method, via Peirce's theory of judgment, for determining the meaning of a conception. Here, the method is most fully developed. The Continuity of Explanation does not simply allow us to determine the meaning of a conception but allows to determine whether and to what extent the conception is affirmed in the course of experience. The Continuity of Explanation captures both the commitments and methods Peirce takes to be employed in scientific reasoning. For the rest of the thesis, I will take the above discussion to suffice as a defense of this claim. To acknowledge this development I will sometimes refer to the Continuity of Explanation as a method — as the *CE Method* — rather than simply as a commitment.

3.2.4 Realism

The Continuity of Explanation offers a method for refining, distinguishing, and affirming the consequences that follow from a hypothesis. Continued refinement suggests that we can distinguish a hypothesis by its potential consequences. Through induction we can then test whether and to what extent these distinct consequences are affirmed in experience. If the hypothesis continues to be affirmed in experience, then the hypothesis begins to be seen as correct. Peirce writes:

> When, however, we find that prediction after prediction, notwithstanding a preference for putting the most unlikely ones to the test, is verified by experiment, whether without modification or with a merely quantitative modification, we begin to accord to the hypothesis a standing among scientific results.[20] [CP 7:206]

[20]See a similar claim in [CP 2:775]: "Upon their appearance [an inquirer] accepts the theory with a modality which recognizes it provisionally as approximately true."

Peirce continues: "for the truth of a theory consists very largely in this, that every perceptual deduction from it is verified" [CP 2:775].[21]

The account of reasoning above offers an argument for Peircean realism. Peirce's realism, when put in these terms, is that judgments can continue to be refined and improved so as to increasingly approximate the way the world is. Peirce describes the capability of this theory of reasoning below:[22]

> The true guarantee of the validity of induction is that it is a method of reaching conclusions which, if it be persisted in long enough, will assuredly correct any error concerning future experience into which it may temporarily lead us. This it will do not by virtue of any deductive necessity (since it never uses all the facts of experience, even of the past), but because it is manifestly adequate, with the aid of retroduction and of deductions from retroductive suggestions,

[21] And elsewhere: "the entire meaning of a hypothesis lies in its conditional experiential predictions: if all its predictions are true, the hypothesis is wholly true" [CP 7:203].

[22] Another relevant passage is discussed below:

> [Inductions] validity does not depend upon the uniformity of nature, or anything of that kind. The uniformity of nature may tend to give the probability evaluated an extremely great or small value; *but even if nature were not uniform, induction would be sure to find it out*, so long as inductive reasoning could be performed at all. [CP 2:775, emphasis added]

Peirce recognizes that this is at variance with the doctrines of other logicians of his time. The passage continues:

> [They] commonly teach that the inductive conclusion approximates to the truth because of the uniformity of nature. They only contemplate as inductive reasoning cases in which, from finding that certain individuals of a class have certain characters, the reasoner concludes that every single individual of the class has the same character. According to the definition here given, that inference is not inductive, but is a mixture of deduction and presumption.

> to discovering any regularity there may be among experiences, ... and is thus readily discovered by induction to exist where it does exist, and the amount of departure therefrom to be mathematically determinable from observation where it is imperfect. [CP 2:769]

Development of each type of inference — abductive (referred to in the previous quote as retroductive), deductive, and inductive inference — allows us to increasingly approximate how things are. Induction allows us to affirm any regularity if it exists in experience. The CE provides a means to refine the meaning of judgment and to determine the conditions for testing the judgment. Through induction an inquirer can then determine whether and to what extent the judgment is affirmed in experience. In Peirce's own words:

> We have thus seen how, in a general way, the processes of inductive and hypothetic inference are able to afford answers to our questions, though these may relate to matters beyond our immediate ken. In short, a theory of the logic of verification has been sketched out. [CP 2:744]

Peirce is explicit about the point in "The First Rule of Logic" (1898), where he suggests that reasoning is capable of fixing its mistakes. He writes:

> This calls to mind one of the most wonderful features of reasoning and one of the most important philosophemes in the doctrine of science, of which, however, you will search in vain for any mention in any book I can think of; namely, that reasoning tends to correct itself, and the more so, the more wisely its plan is laid. Nay, it not only corrects its conclusions, it even corrects its premisses. [CP 5:575][23]

The last point is significant. Peirce achieves his purported synthesis of logic and scientific practice because his logic goes beyond deduction to include induction and abduction.[24]

[23] See similar lines in [CP 5:579 & 582].

[24] Peirce takes abduction to be the type of inference that had been least developed by logicians. See [CP

The result is that logical truth for Peirce is not cut off from material truth.[25]

The *real*, for Peirce, is what would be reached at the result of such continued correction.

> The cognitions which thus reach us by this infinite series of inductions and hypotheses ... are of two kinds, the true and the untrue, or cognitions whose objects are real and those whose objects are unreal. And what do we mean by the real? ... The real, then, is that which, sooner or later, information and reasoning would finally result in, and which is therefore independent of the vagaries of me and you... And so those two series of cognition — the real and the unreal — consist of those which, at a time sufficiently future, the community will always continue to re-affirm; and of those which, under the same conditions, will ever after be denied. [CP 5:311]

Given an enough time an inquirer — investigating *indefinitely*, as Peirce refers to it — would be led to a correct judgment about how things are. Any hypothesis may be wrong or in need revision, but the Continuity of Explanation accounts for forming, refining, distinguishing, and affirming any hypothesis. We have reason to think that in the long run we can form a correct judgment about Smith's behavior. As I put it in the beginning of the section, we have reason to think that we can *determine* the practice that an individual is engaged in.

The Continuity of Explanation allows us to determine the meaning of a conception and allows us to determine whether and to what extent the conception is affirmed in the course of experience. Given the considerations of the *real* above, the CE Method allows us to trace the *real meaning* of a conception. It is the meaning of a conception that is affirmed in the course of experience and investigation. This is significant. I introduced the pragmatic maxim as maxim for regulating inquiry. The maxim allows us to clarify

8:228] & [CP 5:144]. The six-lecture series "Illustrations of the Logic of Science" (1877-78) is a systematic discussion of this point. The "Fixation of Belief" and "How to Make Our Ideas Clear" are the first two essays of the series. The connection, however, is pervasive in Peirce's early and late work.

[25]See the discussion in [CP 5:142]. I will come back to this point in the next chapter when I discuss the *leading* or *guiding principles* of inference.

meaning by looking towards the conception's practical consequences. The addition of Peirce's theory of judgment allows us to see the maxim, here characterized as the CE Method, as a method of reasoning that allows us to determine and affirm the *real* meaning of a conception, i.e. that part of the conception that Peirce thinks would hold up to continued scientific investigation. The CE is a method for distinguishing and affirming the part of the conception that is real. The CE is a method of reasoning in accord with scientific investigation as Peirce see it.

For the rest of the dissertation, I will in general simply refer to *inquiry* or *Peircean inquiry* to refer to Peirce's method of evaluating inferences discussed in this chapter. It is a further question whether this suffices as a characterization of inquiry in general or as a characterization of scientific inquiry as it is actually practiced. While I think that an important component of scientific practice involves developing and testing abductive, deductive, and inductive inferences in this way, it is a further question whether this is an accurate characterization of scientific practice. The argument and conclusions reached presented in the rest of this chapter and the next take this method as its starting point.

3.3 Action Individuation and Agency

The last section applied the Continuity of Explanation to understanding an individual's behavior. The result shows how the Continuity of Explanation allows us to form, refine, and affirm a hypothesis about an individual's behavior. I show in this section how the method allows us to differentiate deliberate and intentional behavior as well as the reasons upon which such behavior is based. The discussion shows that Peirce employed the Continuity of Explanation towards answering these questions and begins to suggest the conclusions that would be reached by applying such a method. As will come as no surprise, Peirce thinks we can distinguish different behaviors by looking at their effects.

3.3.1 Deliberate and Intentional Behavior

For Peirce, deliberate and intentional behavior are types of more general self-controlled behavior. I begin, then, with a discussion of self-controlled behavior, and go on to show how deliberate and intentional behavior are distinguished as species of self-controlled behavior. The account of self-control given below is complicated by the fact that Peirce often discusses self-control in the logical context, i.e. with respect to self-controlled reasoning. I nonetheless try to pull apart these notions here and do so by appealing to Peirce's categories. Self-controlled behavior is a species of more general resolved behavior. Tracing back these relations is helpful because it allows us to clarify the respective concepts and be able to apprehend them when they are present.

The meaning of self-controlled behavior, according to Peirce, lies in its effect on future conduct [CP 5:427]. An action is self-controlled if it involves exercising some level of control over one's future behavior. We may say that a behavior shows signs of self-control if it reflects the *formation of a resolve*. Here is an example given by Peirce:

> I remember that one day at my father's table, my mother spilled some burning spirits on her skirt. Instantly, before the rest of us had had time to think what to do, my brother, Herbert, who was a small boy, had snatched up the rug and smothered the fire. We were astonished at his promptitude, which, as he grew up, proved to be characteristic. I asked him how he came to think of it so quickly. He said, "I had considered on a previous day what I would do in case such an accident should occur." This act of stamping with approval, "endorsing" as one's own, an imaginary line of conduct so that it shall give a general shape to our actual future conduct is what we call a resolve. [CP 5:538][26]

The action cited in the passage is an example of self-controlled, deliberate, and perhaps even (as I will discuss below) intentional behavior. I want to begin by focusing on the last part of the passage where Peirce refers to a resolve.

[26]Peirce also discusses the example in an endnote [CP 5:487].

A resolve, Peirce writes in the passage above, involves endorsing a future line of conduct as one's own. The practical effect of a resolve, Peirce continues in the passage, is that "when a similar occasion actually arises. . . it will be found that the habit of really reacting in that way is already established" [CP 5:538]. The suggestion here is that the immediacy of a response is a sign that the reaction has been pre-established. Rather than being an instance where, upon encountering a novel situation, a course of action still needs to be determined, this is a case where the resulting course of action has already been decided on. This is a sign that the response has in some way already been habituated.

This effect shows that the individual's action is a type of resolved behavior, but not yet why the individual has acted on self-control. I wrote above that for the behavior to be self-controlled, the action needs to demonstrate the *formation* of a resolve. Whether a resolve has been formed can likewise be distinguished by certain practical effects. Perhaps the most important feature are signs that a resolve has changed or been acquired. The individual's behavior in this case is such that in the past the individual did not have such a resolve, i.e. that a habit for acting had not yet been established, and that a new resolve has since been acquired. The previous paragraph discussed how to determine whether an action is a type of resolved behavior. The same means of determination is appealed to here. The only difference is that in this case we are looking for a change in resolve rather than a resolve itself.

If a change is found in an individual's resolved behavior, then this change needs to be accounted for. In some cases the change will not be arbitrary. It will be subject to some restraint — to some control — in which case it is a *controlled* change.[27] The controlled change in behavior also needs to be accounted for. In some cases the change can be accounted for by something external. In some cases, however, we will not be able to trace the external influence. In this case we posit a self to account for the change.[28] The result is that the action is said to be *self*-controlled. The sign that an action is self-controlled is that the individual's actions demonstrate the personal formation of a resolve. I will come back below to fill in some of the details when I discuss agency in the next section.

[27]See [CP 5:418].

[28]See the discussion about individuality and error in [CP 5:225-237]. Peirce writes: "It is necessary to suppose a self in which this ignorance can inhere" [CP 5:233]. Also, see a similar discussion in [CP 7:433-6].

For Peirce, deliberate behavior is self-controlled behavior in thought. Deliberate behavior involves the formation of a resolve and is marked by the same signs and effects of self-control. In deliberate behavior, however, the resolve is based on some further considerations in thought. He writes:

> In the formation of habits of deliberate action, we may imagine the occurrence of the stimulus, and think out what the results of different actions will be. One of these will appear particularly satisfactory; and then an action of the soul takes place which is well described by saying that that mode of reaction "receives a deliberate stamp of approval." The result will be that when a similar occasion actually arises for the first time it will be found that the habit of really reacting in that way is already established. [CP 5:538]

Deliberate behavior is marked by these further considerations in thought — it is marked by signs of reasoned, or we may say *rational*, self-control.

Recall that behavior is said to be controlled when the change in resolve that it demonstrates is not arbitrary. In deliberate behavior the change in resolve is not only not-arbitrary but is now based on some further rational considerations. Whether a change in resolve is based on rational considerations can be distinguished by further practical effects. Take again the above example of Herbert. Herbert noted that he acted quickly to put out the fire because he had considered such an event before and had thought about what to do. The resulting behavior is deliberate because it involved certain considerations in thought. Importantly, Peirce does not take it to be deliberate merely because Herbert reported that deliberation took place. It is deliberate because Herbert's thinking upon certain possible scenarios led to further aspects of Herbert's behavior being affected. Recall a line in the above passage above about deliberate action. Peirce writes that during deliberate action "we may imagine the occurrence of the stimulus, *and think out what the results of different actions will be*." Even though Herbert resolves to act in accord with one of these alternatives, his thoughts would nonetheless reveal themselves if one of those different actions were to arise. This is what Peirce takes to be most distinctive of deliberate behavior. Reasoning effects an individual's general behavior — it effects how the individual would behave in different situations. Reasoning is *general* for Peirce. Any conclusion reached by reasoning

leads to more general changes to one's behavior. Deliberate behavior, i.e. behavior that is the subject of rational self-control, is demonstrated by the resulting general effect that it has on an individual's behavior.

The last section will continue to develop this account. Being attentive to this reasoned change allows us to differentiate the specific reasons upon which an individual acts. For now, I want to show how a similar move can distinguish deliberate and intentional behavior.

Some deliberate behavior will also be intentional. In the case of intentional thought, the rational considerations reflect considerations of a further *purpose*. As a type of deliberate behavior, intentional thought involves the formation of a resolve based on rational considerations. Whether a behavior is purposive can be distinguished by certain practical effects. These practical effects can be seen when comparing intentional behavior with other species of deliberate behavior. Consider, for example, that Herbert entertained various possible scenarios, determined that one would lead to a quick distinguishing of the fire, and resolved to act accordingly. If the deliberation were based on this determination — and this determination alone — then in undertaking the act no further purpose would be achieved. Carrying out the act would lead to no further (general) effect on Herbert's behavior. The action in this case would merely be acting in accord with some previously determined resolve.

This is not always the case. If the resolve is based on a further purpose then the resolve would continue to have a further general effect on the individual's behavior. Take an alternative possibility of Herbert's behavior. Perhaps Herbert is aware that the consideration upon which he bases his resolve rests on a further assumption (i.e. a hypothesis) that the rug would smother the fire. This in turn would have a further general effect on Herbert's behavior. When conditions for acting on the resolve arise Herbert would not simply act on the previously determined resolve, but would see the action as affirming the assumption that a rug can be used to smother a fire. Herbert may have increased confidence in rugs smothering fire (such as through induction) or may take the opportunity to form a further judgment about a rug's ability to smother fire. What is characteristic of this behavior is that effects of the resolve are carried forward in future behavior. The continued general effect on an individual's behavior is characteristic of intentional behavior.[29]

[29]I take Peirce to draw attention to the distinction between deliberate and intentional conduct in the

The initial resolve in the alternative scenario above was based on the further purpose of making more determinate the assumptions upon which the resolve was based. This is a particular type of intentional behavior — the purpose this action reflects is to further inquiry. When the conditions for acting on the resolve arose, the action was seen by Herbert to affirm or extend the inferences upon which the initial resolve were based. The next chapter will focus on the practice of inquiry and how to determine whether an individual is engaged in the practice. The discussion will be based on some of the considerations above.

What I take to be significant about the relationship above between deliberate and intentional thought, is that it allows the formation of certain resolves to be the product of thought and yet not be the product of inquiry. Behavior may demonstrate signs of deliberation and yet not shows signs of more serious intentional thought. Deliberation becomes inquiry, according to Peirce, only when it is intentionally carried out. I think this makes sense. Inquiry, after all, is not simply running through the motions of how one currently deliberates. This may appear to have the aspects of inquiry but it is only nominally so. Inquiry is rather an opportunity to improve one's ability to deliberate — it is an opportunity to change one's future deliberation. Peirce's account shows how we can differentiate between the behavior of an individual who "merely" deliberates and one

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passage below:

> Now the theory of Pragmaticism was originally based, as anybody will see who examines the papers of November 1877 and January 1878, upon a study of that experience of the phenomena of self-control which is common to all grown men and women; and it seems evident that to some extent, at least, it must always be so based. For it is to conceptions of deliberate conduct that Pragmaticism would trace the intellectual purport of symbols; and deliberate conduct is self-controlled conduct. Now control may itself be controlled, criticism itself subjected to criticism... [CP 5:442]

An instance of intentional behavior is when controlled behavior is subject to further control and criticism subject to further criticism. The effect of such behavior is a continued general effect on the individual's behavior.

who is engaged in "genuine" or "real" inquiry. We can differentiate these behaviors by the potential effect such actions may have on an their future behavior — by whether their future behavior would be effected if certain conditions arose. Mere deliberation only nominally counts as an instance of inquiry. While mere deliberation has aspects of inquiry, it fails to demonstrate any of its effects. Using terminology from the last section, we may say that as a particular act mere deliberation has the features of inquiry (i.e. it may appear to be inquiry), but that it fails to show any of the more general features of inquiry. Even though locally (and think back here to the indeterminacy from a limited sampling) we may not be able to distinguish them, we nonetheless in general can. We can give criteria for doing so and would be able to if inquiry were to continue indefinitely in the long run. It is more accurate to say that mere deliberation is a *degenerate* instance of inquiry.

I wrote that according to Peirce the meaning of self-controlled behavior lies in its effect on future conduct. In the account above what is characteristic of intentional behavior is that it continued to have (or, if the purpose has yet to be achieved, continues to have) an effect on future conduct.[30] Whereas the result of deliberate behavior leads to a general effect on an individual's behavior, the result of intentional behavior leads to some continued general effect on an individual's behavior. The difference between controlled behavior, deliberate behavior, and intentional behavior can each be distinguished by their practical effects.

This section serves as a demonstration of the Continuity of Explanation as a method of conceptual analysis. The Continuity of Explanation is a method of reasoning that preserves and improves our ability to distinguish a type of behavior when it is present. The result is a pragmatic elucidation of the behavior. The primary benefit of this approach is that it offers a means of conceptual analysis that preserves the relations between a concept and its potential experiential consequences. It is a method of reasoning that seeks to preserve the relations found in experience and that might go on to be affirmed in scientific investigation. It is a further, empirical question whether we find behaviors that demonstrate these effects. Peircean pragmatism nonetheless offers a means of distinguishing such behaviors, and does

[30]See the discussion in [CP 5:441-442], where Peirce is explicit about the difference. In intentional behavior, the control exercised in deliberate behavior is itself the subject of further control.

so based on reasoning about possible differences practice.

3.3.2 Agency

In the last subsection I distinguished deliberate and intentional actions by tracing out differences in their practical effects. I only gestured at the time towards how a change in behavior can be a controlled change and how a controlled change can be attributed to a self. Here I suggest that we may speculatively say that resolved behavior is the product of some *agency*. I begin with a discussion comparing resolved behavior and with other types of habituated behavior. The result shows that for Peirce agency is closely tied to intentional behavior.

While there is a close connection between resolved behavior and habituated behavior, I want nonetheless to disambiguate them here. A habit, as I've been using the term, may be a natural disposition. It is a further open question about whether the habit is the product of thought and deliberation, or whether it arose from some other process. Here is Peirce writing on the distinction in 1902:

> Let us use the word "habit," throughout this book, not in its narrower, and more proper sense, in which it is opposed to a natural disposition (for the term acquired habit will perfectly express that narrower sense), but in its wider and perhaps still more usual sense, in which it denotes such a specialization, original or acquired, of the nature of a man, or an animal, or a vine, or a crystallizable chemical substance, or anything else, that he or it will behave, or always tend to behave, in a way describable in general terms upon every occasion (or upon a considerable proportion of the occasions) that may present itself of a generally describable character. [CP 5:538]

I have been using "habit" in this wider, more usual sense, as a habit or tendency to behave in a general way. A resolve is an acquired habit in the above sense.

Even though a resolve produces something very much like (or just is) a habit, it captures

an important further point about the origin of the habit. Here is Peirce writing specifically on acquired habits, now in 1906:

> A man can be durably affected by his percepts and by his fancies. The way in which they affect him will be apt to depend upon his personal inborn disposition and upon his habits. Habits differ from dispositions in having been acquired as consequences of the principle, virtually well-known even to those whose powers of reflexion are insufficient to its formulation, that multiple reiterated behaviour of the same kind, under similar combinations of percepts and fancies, produces a tendency — the habit — actually to behave in a similar way under similar circumstances in the future. [CP 5:487]

This use of habit here, and notice that Peirce is talking specifically about the formation of a habit in the above passage, is that of a general tendency to behave that is acquired through the iteration of behavior. An acquired habit can develop from the physiological changes that accompany reiterated behavior.

Peirce continues the above passage by noting that the same principle applies to thoughts in the inner world:

> Moreover — here is the point — every man exercises more or less control over himself by means of modifying his own habits; and the way in which he goes to work to bring this effect about in those cases in which circumstances will not permit him to practice reiterations of the desired kind of conduct in the outer world shows that he is virtually well-acquainted with the important principle that reiterations in the inner world fancied reiterations if well-intensified by direct effort, produce habits, just as do reiterations in the outer world; and these habits will have power to influence actual behaviour in the outer world; especially, if each reiteration be accompanied by a peculiar strong effort that is usually likened to issuing a command to one's future self. [CP 5:487]

Habits of thought (and of the respective corresponding changes to habits of action) can likewise be developed through iterated behavior. Peirce takes the acquisition of physiological habits and habits in thought to be developed through iterated behavior.

In the physiological case this development did not necessarily require further control on behalf of the agent. The same may be said of the development of some habits of thought. Habits of thought may also be constitutional or acquired.[31] Habits that are further developed through iterative thought where the individual cannot help but be affected are *uncontrolled*. Like the physiological example above, the developments that follow iterative inferences may serve again as a case in point. A reiterated inference develops efficiencies in thought. The iteration adds no new content, but the habit is nonetheless being developed.

The acquisition of some habits, however, appear to be the product of some *agency*. Here is Peirce acknowledging the distinction in habits of thought:[32]

> All inferences are really performed under the influence of the law of association. But all psychical actions divide into two great classes, those which are performed under the uncontrolled governance of association and those in which by the "agency" of consciousness, whatever that may mean, the actions come under self-criticism and self-control. The latter class of actions may be pronounced good or bad; the former could not be otherwise than they were. [CP 7:444]

Some acquired habits seem to be the product of self-control. The distinction here is between habits that are developed in an uncontrolled way, and habits that are acquired through the exercise of some control.

Peirce is speculative here. Following his method of reasoning, characterized here by the Continuity of Explanation, is nonetheless interesting and worthwhile. In following the method we clarify the meaning of each concept within experience. Peirce speculates at this point that agency is concomitant with an act of voluntary attention. Below is the further passage where Peirce, though still tentative, elaborates on the point:

> Interest has been spoken of as either connected with voluntary action or as emotional. We must not, however, lose sight of the fact that there is such a

[31] Peirce writes: "That which determines us, from given premisses, to draw one inference rather than another, is some habit of mind, whether it be constitutional or acquired" [CP 5:367].

[32] See also, the rest of the section on uncontrolled inference from [CP 7:444-450].

> thing as theoretical interest, which has reference not to outward action but to the voluntary agency we put forth in directing our own ideas... Let us rather content ourselves with acknowledging that this sort of voluntary action is of a nature not understood. It exists; there is a corresponding kind of interest referring to it; and there is a kind of attention, or heightening of consciousness in the initial stage of suggestions interesting in that way.
>
> An immense number of associations are formed, and remain as long as they endure, in the background of consciousness, that is, in subjective obscurity. But as soon as a cerebro-motor suggestion is made, that is a suggestion of the idea of voluntarily exercising thought, the whole set brightens up. At the same time the action of forming and annulling sets, say the metabolism of thought, becomes more active. So that our instinctive psychological explanation is that the heightened consciousness is an agent that performs the action. If there is nothing in this but a word, we need not quarrel about it; but it would seem that as a matter of dynamics heightened consciousness, or attention, is nothing but a concomitant of the idea of voluntary action... [CP 7:433 & 434]

Peirce recognizes that there may be nothing in the difference except for a word, but the formation of the habit in the above passage begins to be seen as the product of an agent. The acquisition of a habit through voluntary attention is a sign of agency.

I take Peirce's reservations to arise from the emphasis on "voluntary" attention. This meaning of voluntary can be cached out in the same way that the attribution of a self is attributed to a controlled act. In some cases we will not be able to account for attentive behavior by appealing to (or at least solely to) some external influence. What I want to turn to, however, is the new emphasis that Peirce places on attention and its relation to agency.

There is a close connection between attention and the discussion of intention in the previous subsection. Recall that the characteristic of intentional behavior is that it continues to have a general effect on an individual's behavior. The meaning of intentional behavior, according to Peirce, lies in its potential continued effect on future conduct. The meaning of attentive behavior on this account also lies in its effect on future conduct. The

effect of attentive behavior is that certain aspects of current experience are carried forward into subsequent experience. The effect of attention is iterative experience. Attention, at least when it has no further aim, is intentional behavior lacking in definite purpose. We may say, using a term introduced before, that attentive behavior is a degenerate form of intentional behavior.

Here we see the uptake of the discussion. Attention, according to Peirce, is the common denominator between agency and intentional behavior. Attention is also for Peirce the common denominator between intentional behavior and deliberation. Let us return to the alteration on the Herbert example offered to demonstrate intentional thought. In the example Herbert is aware of — and now we may just as well say Herbert is attentive to — the further considerations in thought upon which the resolve is based. The difference between intentional behavior and deliberate behavior came down to a difference in attention.

Peircean pragmatism, here characterized by the Continuity of Explanation, offers a theory of action and agency. Again, it is a further empirical question whether we find behaviors that demonstrate these effects. Testing for signs of agency is a notoriously difficult problem. Peircean pragmatism nonetheless suggests a means of distinguishing such behaviors, and does so based on reasoning about possible differences practice — differences in behavior that would, at least potentially, be accountable to inquiry. The CE Method allows us to distinguish between intentional and deliberate behavior. Peirce also possesses a theory of agency that links agency with intentional behavior and intentional behavior (at least intentional thought) with acting on a reason.

3.3.3 Reason and Action

The previous section demonstrated how the Continuity of Explanation can be employed to individuate different types of action and agency. I set aside at the time the further question of which specific considerations the individual has in mind. In this section I complete this account and show how the Continuity of Explanation allows us to determine the specific reasons upon which an individual acts.

According to Peirce, considerations in thought are general and so lead to a corresponding general effect on an individual's behavior. A deliberate action involves the formation of a resolve that is based on some rational considerations in thought. The result is a rational effect on an individual's behavior. At this point I set the details of this process to the side. I did not discuss how the method allows us to determine the rational considerations upon which deliberation, and the resulting resolve and rational effect, is based. Here I fill in these details. Peirce's theory of judgment allows us to determine the inference upon which an individual's behavior is based.

I begin with a review of Peirce's theory of judgment introduced in Chapter 2. Recall the diamond example as initially presented in Section 2.2. Peirce recognizes that the individual does not simply intuit the object to be diamond, but rather that the individual *infers* the object under consideration to be a diamond.[33] The individual may have judged, for example, based on the object appearing to be a mineral, to have an octahedral structure, and to look more or less like what past experiences of diamonds suggest.

We can test which inference the resulting judgment is based by seeing how the individual would behave if situations were different. While the behavior of two individual's may appear indistinguishable in a present instance — both may judge the present object under consideration to be a diamond of certain hardness — the general behavior of the two individuals can nonetheless still be distinguished. As an example, take two individuals: one who infers from the relative translucency of the object that object is a diamond, and another who bases the inference on the object's mineral structure. These inferences would correspond with different general effects on an individual's behavior. One individual would act accordingly on similarly translucent objects, the other would act accordingly on objects with similar mineral structures. But the sets of objects in each of these classes are not the same. There are situations where the two individuals would draw different conclusions regarding a same object. The different conclusions and the resulting difference in behavior allows us to distinguish which inference a judgment is based on. Which inference an

[33]Whether and in what way an individual infers is a further empiricial question. I point out for now that Peirce's argument so far only rests on an assumption that the individual's behavior can be represented by a judgment.

individual makes can be tested by how the individual would behave in different situations. This allows us to test which rational considerations the resulting habit is based.

This account allows us to evaluate judgments and the inferences upon which the judgment is based. Not only can we now distinguish from an individual's behavior the inference upon which a judgment is based, but we can evaluate whether the inference is a good one. Would the individual who infers a diamond based on translucency apprehend a diamond whenever a diamond is present? The individual may in this case incorrectly attribute a diamond's hardness to a translucent, non-diamond mineral. Or, the individual may incorrectly fail to attribute hardness to an object that is a diamond, but is nonetheless in its unpolished, non-translucent form.

This is in accord with the account given in Section 2.4.2. There I appealed to a clear apprehension of an object as being able to apprehend the object whenever a sign of the object is present. This included being familiar with an object, having a distinct apprehension of an object, being able to identify an object by its effects. A clear apprehension demonstrates itself in an individual's behavior in these ways.

The CE Method above allows us to add to this picture. The individual's judgment may be based on the object appearing to be a mineral, to have an octahedral structure, and to look more or less like what past experiences of diamonds suggest. We can now refine this account. The inference is based, according to Peirce, on a series of prior abductions, deductions, and inductions. The diamonds observed in the past offered a sampling, abductive inferences offered hypothesis about a diamond's hardness and how to identify diamonds when they are present. When we determine the reason upon which an action is based, we can now include and refine aspects of the judgment through previous abductive, deductive, and inductive support.

By refining the general effect a judgment has on an individual's behavior, we can distinguish whether and to what extent an individual acts on a reason. The Continuity of Explanation allows us furthermore to evaluate the inference upon which a judgment is based. Peirce's theory of judgment offers a direct connection between reasons and action.

3.4 Conclusion

The Continuity of Explanation offers a method for understanding an individual's behavior. I began this chapter by demonstrating how the CE allows us to determine the practice that an individual is engaged in. This includes positing a practice through hypothetic inference, refining and distinguishing the practice from other related practices through deductive inference, and affirming the practice through inductive inference. I went on in Section 3 to demonstrate how the method can be applied to particular types of behavior. I showed how the CE allows us to differentiate deliberate behavior and intentional (i.e. purposive) behavior, as well as the reasons upon which an individual acts.

More broadly, the CE provides a method of conceptual analysis that preserves the relations between a concept and its potential experiential effects. It is a method of reasoning that preserves the experiential consequences that might be affirmed in Peircean inquiry. This supports the claim, introduced in Chapter 2 and refined and further defended in Chapter 3, that the CE is the regulative commitment of inquiry. The CE incorporates the methods and commitments of the three types of inference — abductive, deductive, and inductive inference — that Peirce takes to be characteristic of scientific reasoning. Whether and to what extent this is representative of scientific practice is a further empirical question. As I stated before, I find it uncontroversial that scientific practice rests, at least in part, on these types of inferences and so that some of the conclusions should extend to our understanding of the practice. But I leave it open to the reader to determine to what extent the model can be taken as representative of actual scientific practice.

While the CE incorporates the methods and commitments of abductive, deductive, and inductive inference, it is not simply the combination or intersection of the three inference types. The CE captures the aspects of abductive, deductive, and inductive inferences that serve the larger goal of forming and testing judgments that would be affirmed in inquiry. This in one of the advantages offered by the CE. As the general commitment to what Peirce takes to be scientific reasoning, it is committed not just to the employment of the three inference types, but is committed to how they relate and support each other and, in particular, how they relate and support each other to further the goal of reaching a correct judgment about the world. The CE also makes plain the metaphysical commitments upon

which such reasoning is based. The metaphysical commitments were introduced in Chapter 2 and will be further developed in the next chapter.

A result of applying the CE is worth emphasizing. The CE Method allows us to *evaluate* an individual's behavior. The meaning of an individual's behavior can be characterized by the reasons upon which the behavior is based. We can in turn evaluate an individual's action by evaluating the reasons upon which the act is based. The CE allows us to differentiate different types of action, offers an account that connects actions and reasons, and allows us to evaluate actions. The CE allows us, we may now say, to determine whether and to what extent the practice that an individual is engaged in is *reasonable*. This point is elaborated in the next chapter, where I argue that the CE does not simply offer a method for determining whether an action is reasonable, but offers a guide for developing more reasonable behavior.

There is one further result that is worth noting. According to Peircean pragmatism, determining the meaning of an action leads to the means of evaluating the action. The order is significant. The CE serves first as a means to clarifying the meaning of a concept. It is only through clarifying the meaning of a concept that its means of evaluation become clear. This leads to a corollary. It suggests that if one does not see how to evaluate an action then it is because one does not yet have a clear understanding of the meaning of the action.

Chapter 4

The Continuity of Explanation Applied to Inquiry

The Continuity of Explanation (CE) is the commitment that every judgment entails consequences for action that are accountable to scientific inquiry. I introduced the CE in Chapter 2 as a regulative commitment to Peircean inquiry. The CE was significantly refined in the last chapter where I showed that it captures the commitments and methods of the three types of inferences — abduction, deduction, and induction — that Peirce takes to be characteristic of scientific inquiry. The CE offers, in short, a method of reasoning that is in accord with Peircean inquiry.

The last chapter demonstrates how the Continuity of Explanation can be applied towards understanding an individual's behavior. The CE leads to three significant results for understanding an individual's behavior . The CE Method can determine the practice an individual is engaged in, can determine the reasons upon which a practice is based, and can determine whether the reasons are good reasons. The CE Method can determine, in short, whether an individual's behavior is *reasonable*. I went on to apply the CE towards understanding deliberate and intentional behavior. The results show how Peircean

pragmatism offers a theory of action.

The aim of the dissertation is to show not simply that Peircean pragmatism can determine whether a practice is reasonable, but that it can serve as a guide for developing more reasonable behavior. Up until now, I have done little to address this last question. I remedy this omission here. By 'more reasonable' I mean more in accord with the CE Method discussed in Chapter 3, which is gives a method for evaluating respective abductive, deductive, and inductive inferences. I do not compare this method of reasoning with other alternatives.

I begin this chapter with a discussion of the practice of inquiry. I go on to give an account of its development. To understand the practice of inquiry we can appeal back to the CE. Inquiry, after all, is a practice that we can engage in and so the same method for understanding the practice will apply. The result is an increased familiarity with the practice and the behavior of an individual engaged in inquiry.

Next, I turns towards how the CE offers a guide for developing the practice. I begin this development with a final (at least for our purposes here) refinement of Peirce's theory of judgment. According to Peirce's theory of judgment every inference is based on more general principles of reasoning. These general principles of reasoning correspond — as should no longer comes as a surprise — with more general behaviors. What I go on to argue, however, is that the CE shows how to develop an understanding of these general principles. It is through developing these general principles that the CE offers a method for developing more reasonable behavior.

In the penultimate section I discuss the general principles of reasoning in more detail. I show that these general principles for Peirce include the will to learn, a fallibilism, and a tendency to view the world as continuous, a view Pierce refers to as synechism. Each type of inference also rests on more general principles characteristic of their evaluation. The result is the final support for the claim that Peircean pragmatism offers a guide for developing more reasonable behavior.

4.1 Inquiry and Investigation

Inquiry is a practice we engage in. In this section I apply the CE towards understanding the practice of inquiry. The result is a pragmatic elucidation of the practice that allows us to identify whether and to what extent an individual is engaged in inquiry.

I introduced Peirce's conception of inquiry in Chapter 2.2 as the activity that begins with doubt and that ends with its cessation, i.e. in a state of belief. When I introduced the notion of belief, I suggested that the meaning of a belief is the mode of action it establishes. At the time I only gestured towards why Peirce takes this to be the case. I suggested that if the concept of belief is to be scientifically appropriate then it must refer to a mode of action that can be accountable to scientific investigation. I went on to argue in Chapter 2 that this is also the insight that motivates the pragmatic maxim. Peirce assumes that the result of inquiry is a belief and so the result of inquiry likewise consists in establishing a mode of action (see 2.3). The pragmatic maxim is the maxim for inquiry that follows, in short, when we take inquiry to result in a mode of action. Peirce assumes that the result of inquiry be regulated by its future connection to action.

The point of the discussion at the time was to emphasize the minimal assumptions that went into motivating the pragmatic maxim and so at the time the gesturing was appropriate. The discussion of the CE in the last chapter allows us to refine and defend this account. Peirce's initial characterization of inquiry follows from an application of the CE Method. The CE allows us, as we'll see below, to go further. But for now I begin with applying the CE to the conceptions of doubt and belief. In 'The Fixation of Belief,' Peirce introduces the concepts doubt and belief with an example on deciding how best to pay a fare for a horse-car:

> . . . looking at the matter minutely, it must be admitted that, if there is the least hesitation as to whether I shall pay the five coppers or the nickel (as there will be sure to be, unless I act from some previously contracted habit in the matter), though irritation is too strong a word, yet I am excited to such small mental activity as may be necessary to deciding how I shall act. . . . However the doubt may originate, it stimulates the mind to an activity which may be slight or

> energetic, calm or turbulent. Images pass rapidly through consciousness, one incessantly melting into another, until at last, when all is over — it may be in a fraction of a second, in an hour, or after long years — we find ourselves decided as to how we should act under such circumstances as those which occasioned our hesitation. In other words, we have attained belief. [CP 5:394]

In this example Peirce links the conceptions of doubt and belief with certain actions. A sign of doubt, on this account, is a pause or hesitation in one's behavior. In the case of inquiry, doubt is followed by some mental activity — by an activity in thought, no matter how small or how slight, as Peirce emphasizes — that leads to a decision about how to act.[1] The resulting decision about how to act is the attained belief. Each action — the pause or hesitation that is a sign of doubt, the resulting mental activity that corresponds with inquiry, and the resulting behavior that the belief establishes — is according to Peirce accountable to scientific inquiry.

This is a preliminary pragmatic elucidation of inquiry. It is in accord with Peirce's initial characterization in 'The Fixation of Belief' and the account given in Chapter 2.2. Now we can see that Peirce is employing the same method of pragmatic elucidation elaborated in Chapter 3 that involves tracing out the concept's practical (or experiential) effects.

The CE Method discussed in the last chapter allows us to refine this account. For starters it offers a method for determining changes in action. The CE, furthermore, allows us to determine the mode of action that inquiry establishes. Here we can appeal to the methods of determining behavior discussed in Chapter 3.1 & 3.2. Indeed the CE allows us, by focusing on the difference between the mode of action before and after inquiry, to determine the specific reasons upon which an individual's inquiry is based (see Chapter 3.3). The CE Method allows us, in short, to look at the general effects the mental activity in which inquiry consists has on an individual's behavior.

On this account all that is needed to gain familiarity with the practice of inquiry, according to Peirce, is familiarity with recognizing doubt, recognizing belief, and recognizing the type of change in belief that is specific to the practice of inquiry. Each of these concepts can in turn be reduced to differences in modes of action. This is significant as it rests

[1] Peirce offers a similar account in [CP 5:510].

on no further metaphysical assumptions other than those that went into Peirce's initial conception of belief as establishing a mode of action. The assumption that belief establishes a mode of action is substantially developed in the last chapter in my discussion of the CE Method, where through abduction, deduction, and induction we can determine the mode of action that an individual is engaged in. Familiarity with the practice of inquiry requires familiarity with a mode of action (i.e. belief), the privation of a mode of action (i.e. doubt),[2] and the resulting change in a mode of action that is characteristic of inquiry.[3]

Doubt followed by mental activity and a corresponding change in an individual's mode of action are signs of inquiry. The CE offers a further refinement on the pragmatic elucidation of inquiry. Inquiry is not simply a change from doubt to belief, but is a specific change — a deliberate, self-controlled change — that establishes a mode of action. Here I appeal to the discussion of deliberate and intentional behavior in Chapter 3.3.1. In the case of

[2]Peirce writes in [CP 5:514]:

> Doubt is of an altogether contrary genus. It is not a habit, but the privation of a habit. Now a privation of a habit, in order to be anything at all, must be a condition of erratic activity that in some way must get superseded by a habit.

Peirce writes of doubt being the privation of belief on one other occasion, where he offers the following example: "The third kind of opposition is between a habit and its privation, as sight and blindness" [CP 2:608].

[3]The latter is familiarity with the derivative (Δ) of a mode of action. I will not develop this insight here, but it seems that this may be the simplest and most direct instance of the importance of continuity in inquiry. It is an example of Peirce's synechism, or to be more specific, of synechistic reasoning. It allows us to engage in inquiry without additional metaphysical assumptions. It allows us to reason about belief and its derivatives in a way that preserves our familiarity with the initial conception of belief. Compare with the discussion of synechism in Sect 4.4 later in this chapter. Indeed the discussion in this dissertation suggests how one could give an account of Peirce where every epistemic concept — including judgment, inquiry, and even reality and truth — is derivative of a mode of action. Each can be characterized and reduced to the mode of action that it would establish.

deliberate behavior the change in the mode of action that belief establishes is controlled, and has a further, more general effect on the individual's behavior. Referring again to a passage cited in the discussion of deliberate behavior in Chapter 3, Peirce writes:

> In the formation of habits of deliberate action, we may imagine the occurrence of the stimulus, and think out what the results of different actions will be. One of these will appear particularly satisfactory; and then an action of the soul takes place which is well described by saying that that mode of reaction "receives a deliberate stamp of approval." [CP 5:538]

Recall the example of Herbert deliberating in advance how to put out a fire. While Herbert's acting immediately to put out the fire is a sign that he deliberated about what to do in advance, the deliberation had a further general effect on Herbert's behavior. During deliberation Herbert considered various alternative scenarios and it is this entertaining of other scenarios that leads to further effects on Herbert's behavior. Herbert perhaps decided that a rug would be the better choice than a table cloth or dish towel, or that, if no rug is available to stop, drop, and roll. These deliberations reveal themselves in Herbert's actions for smothering the fire (or would reveal themselves if other scenarios were to arise). Inquiry is deliberate and so includes, according to Peirce, these more general effects of deliberation on an individual's behavior. This further pragmatic elucidation in turn increases familiarity with the practice of inquiry. The CE method gives a straightforward means of distinguishing inquiry that is deliberate and self-controlled from related practices that, though they may share certain behaviors or demonstrate similar physiological signs, merely coincide with the practice of inquiry.

Peirce increasingly came to emphasize this connection between deliberate behavior and inquiry proper.[4] Reflecting back on the pragmatic maxim circa 1905, Peirce emphasizes the importance of deliberate, controlled conduct in applying the maxim. He writes:

> The method prescribed in the maxim is to trace out in the imagination the conceivable practical consequences, — that is, the consequences for deliberate,

[4]See examples in [CP 5:441-3] and [CP 8:191]. Peirce's increasing interest in the normative sciences can be seen as evidence of this as well.

> self-controlled conduct, — of the affirmation or denial of the concept; and the assertion of the maxim is that herein lies the whole of the purport of the word, the entire concept. [CP 8:191]

Peirce recognizes the difference between an individual engaged in inquiry proper and an individual who merely appears to be. Peirce writes:

> Reasoning is a process in which the reasoner is conscious that a judgment, the conclusion, is determined by other judgment or judgments, the premisses, according to a general habit of thought, which he may not be able precisely to formulate... Without this logical approval, the process, although it may be closely analogous to reasoning in other respects, lacks the essence of reasoning.[5] [CP 2:773]

I take these passages to suggest that Peirce makes a distinction between genuine inquiry, i.e. inquiry that is deliberate (and so also subject to self-control), and a contrasting, merely nominal version of the practice. An individual who doubts, shows signs of mental activity, and goes on to establish a mode of action, may appear to be engaged in inquiry. But if the individual is not conscious of the rule of thought whereby the resulting mode of action is established, then even though the individual is going through the motions they are not engaged in genuine inquiry. The individual in this case is not engaged in reasoning. While the individual in this case may appear to be engaged in inquiry, there are no signs of the general effects that accompany the practice. We only confuse such individuals if we are being particularly nearsighted. Inquiry is genuine only if it is deliberate and subject to self-control.

Inquiry may also be intentionally engaged in. I again appeal to the discussion of intentional behavior in Chapter 3.3.1. Whereas the result of deliberate behavior leads to a general effect on an individual's behavior, the result of intentional behavior is a *continued* general effect on an individual's behavior. I call inquiry that is intentionally engaged in

[5] Peirce makes a similar remark with regard to reasoning and inference in [CP 5:108].

investigation.[6] Intentional inquiry, i.e. investigation, leads to a further update and revision of one's beliefs, methods, or confidence in them.

The move to intentional inquiry, i.e. investigation, also corresponds with important features of Peirce's later thought. The CE accounts for these developments as well. Peirce increasingly came to emphasize the intentional aspect of reasoning. Peirce writes:

> In genuine reasoning, we are not wedded to our method. We deliberately approve it, but we stand ever ready and disposed to reexamine it and to improve upon it, and to criticize our criticism of it, without cessation. Thus the utility of the word "reasoning" lies in its helping us to discriminate between the self-critical and uncritical formations of representations. [MS 831, 1900]

Notice Peirce's use of 'self-critical' rather than 'self-control.' It is the continual readiness to reexamine deliberate thought — i.e. being self-critical — that Peirce emphasizes is characteristic of genuine reasoning in the passage above. This continued general effect on an individual's behavior is what, as I've argued above, is distinctive of intentional inquiry.

Peirce also increasingly came to equate the intellectual purport of a conception with the part of the conception that is carried forward in inquiry. Peirce writes:

> It appears then that the intellectual significance of all thought ultimately lies in its effect upon our actions. Now in what does the intellectual character of conduct consist?... it must be capable of rational interpretation to a future thought. Thus thought is rational only so far as it recommends itself to a possible future thought. Or in other words the rationality of thought lies in its reference to a possible future.[7] [CP 7: 361]

[6] As far as I can tell this distinction is nowhere made explicit in Peirce's writings. Peirce seems at times to use the terms interchangeably (such as in 'The Fixation of Belief'). I nonetheless take the distinction between deliberate and intentional inquiry to be significant, and I go on to argue below why the distinction captures a significant and core aspect of Peirce's latter writings.

[7] A further passage regarding Peirce's semiotics helps describe the point:

The pragmatic maxim is concerned with the intellectual purport (or as Peirce refers to it below, the rational purport) of a conception. The intellectual or rational purport is the part of the conception that is carried forward into the future thought as investigation continues. In regards to rational purpose, Peirce is explicit about its importance to pragmatism:

> I agree that of the two implications of pragmatism that concepts are purposive, and that their meaning lies in their conceivable practical bearings, the former is the more fundamental. I think, however, that the doctrine would be quite estropiée without the latter point. [CP 8:322]

Reflecting on the pragmatic maxim in 1902, Peirce acknowledges that looking towards a conception's purpose leads to a still higher grade of clarity. Peirce writes:

> ... the spirit of the maxim itself, which is that we must look to the upshot of our concepts in order rightly to apprehend them, would direct us towards something different from practical facts, namely, to general ideas, as the true interpreters of our thought. ... the maxim has approved itself to the writer, after many years of trial, as of great utility in leading to a relatively high grade of clearness of thought. ... when that has been done, and not before, a still higher grade of clearness of thought can be attained by remembering that the only ultimate good which the practical facts to which it directs attention can subserve is to further the development of concrete reasonableness; so that the meaning of the concept does not lie in any individual reactions at all, *but in*

> Thought, however, is in itself essentially of the nature of a sign. But a sign is not a sign unless it translates itself into another sign in which it is more fully developed. Thought requires achievement for its own development, and without this development it is nothing. Thought must live and grow in incessant new and higher translations, or it proves itself not to be genuine thought. [CP 5: 594]

The point, as I take it here, is the same: genuine thought is proven in its continued relation to future investigation.

> *the manner in which those reactions contribute to that development.* [CP 5:3, emphasis added]

Peirce asks us not only to adopt the maxim attentively but asks us to look towards the 'upshot' or the results the intentional adoption of the conception would have. According to the maxim, the intellectual purport of a conception lies in its relevance in continued future investigation. The passage captures nicely Peirce's emphasis on the effects of deliberate behavior and general ideas, and the importance of the effects that would result from the intentional adoption of a conception. The CE can account for the significance Peirce comes to place on effects of the intentional effects of a conception.

The passage above also, though it is more subtle, suggests that the importance of both deliberate and intentional behavior comes down to a difference in directing attention. This is substantially in accord with the discussion of attention and its relation to deliberate and intentional behavior found in Chapter 3.3.2. The CE method accounts for the importance of attentive, deliberate, and intentional behavior within inquiry, along with the increasing emphasis Peirce places on each. In the next section I offer a final development along these lines. A further refinement of Peirce's theory of judgment developed in the next section allows us to say what the inquirer is attentive to.

Finally, the emphasis the CE places on deliberate and intentional inquiry allows us to see how investigation can influence behavior more generally. Peirce increasingly came to recognize that the pragmatic maxim offers not only a theory of meaning and inquiry but offers a guide for developing more reasonable behavior. It is through investigation that one develops more reasonable behavior.

The CE method yields a pragmatic elucidation of inquiry and investigation. The result is that we can begin to determine whether and to what extent an individual is engaged in inquiry, and when an individual does so deliberately and intentionally. It is a further empirical question whether we find behaviors that demonstrate these effects. Peircean pragmatism nonetheless suggests a means of distinguishing such behaviors, and does so based on reasoning about possible differences practice. Such a distinction is nonetheless significant, however, because we can begin to discuss what would result if an investigator were to continue to intentionally engage in inquiry. The final section of the chapter begins to

draw conclusions about such an investigator. The CE method offers of guide for reasonable behavior. To see how the CE method serves as a guide for more reasonable behavior, we need first to turn to one last feature of Peirce's theory of judgment — that judgment, according to Peirce, is in some sense continuous.

4.2 Continuity of Judgment

I turn now to emphasize one last feature of Peirce's theory of judgment. The meaning of a judgment, according to Peirce, can be represented by a series of inferences. The series is potentially infinite — it has no clear end and no clear parts — and so we can say that judgment is, in some sense, *continuous*. I explain the point below. The continuity of judgment is significant for seeing how the CE method serves as a guide for more reasonable behavior in Section 3. It also allows us to make a final refinement on the distinction between inquiry and investigation discussed in the last section. The continuity of judgment allows us to differentiate deliberate inquiry and inquiry that is intentionally engaged in, i.e. investigation. The difference lies in the aspect of judgment an individual is paying attention to.

I appealed earlier to the continuity in judgments. The first appeal to continuity in judgment came in Chapter 2, where I suggested that every judgment is based on further considerations. To see this, take again the diamond example discussed in Chapter 2.4. Peirce recognizes that the individual does not intuit but rather *infers* the object to be a diamond.[8] The individual may have concluded that the object is a diamond, for example, based on an inference from the object appearing to be a mineral, to have an octahedral structure, and to look more or less like what past experiences of diamonds suggest. These in turn lead to further questions that rest on further considerations. According to Peirce, every judgment is based on such further considerations.

[8]This ultimately is an empirical claim. Peirce's argument rests on supposing that we can make such an assumption to keep inquiry going. It is what I have called a regulative commitment. The further question (for both Peirce's account and for the empiricial support) is whether such a claim finds support.

In the diamond example above the judgment can be represented by the series of inferences upon which the judgment is based. Given the three types of inference discussed in Chapter 3, this series of inferences includes a combination of abductions, inductions, and deductions. Judging an object to be a diamond is an abduction based in part on prior abductions. To attribute a diamond's hardness to an object is to offer a hypothesis. The hypothesis suggests that the object would indeed behave like a hard diamond. Deduction is present in tracing out the consequences that would follow from such a hypothesis, and these in turn are tested in experience.[9] The content of the attribution (what is meant by 'hard') is in turn the product of past hypotheses combined with inductive testing. Confidence in the result is based on prior inductions and prior samplings of diamonds and how they behave. In each case the meaning of the judgment can be represented by the further inferences upon which the judgment is based.

According to Peirce, when an individual forms a judgment the individual employs a logical method. The logical method supposes that the judgment, in this case the conclusion of deliberation, indeed follows from the series of inferences upon which it is based. Peirce writes:

> Reasoning is a process in which the reasoner is conscious that a judgment, the conclusion, is determined by other judgment or judgments, the premisses, according to a general habit of thought, which he may not be able precisely to formulate... Every reasoner, therefore, since he approves certain habits, and consequently methods, of reasoning, accepts a logical doctrine...[10] [CP 2:773]

When an individual forms a judgment the individual employs and approves of this logical method. The employment and approval of this method, as Peirce suggests above, is something an inquirer is attentive to even though the inquirer may not be able to precisely formulate it.

[9]For the rest of this section I focus mostly on the abductive and inductive elements. This is to keep the discussion brief, but also because the abductive and inductive elements are the most interesting for my purpose here.

[10]Similar passages can be found in [CP 2:589] & [CP 4.476].

A logical method is comprised of what Peirce calls *leading* or *guiding principles*:

> That which determines us, from given premisses, to draw one inference rather than another, is some habit of mind, whether it be constitutional or acquired... The particular habit of mind which governs this or that inference may be formulated in a proposition ... and such a formula is called a guiding principle of inference.

The general method upon which an individual resolves doubt in terms of belief rests on these further guiding principles.[11] The series of inferences that represent a judgment includes these guiding principles.

Each type of inference includes guiding principles of its own. A judgment with abductive elements rests on prior and more general assumptions about abductive inference. Likewise the inductive elements rests on prior and more general assumptions about inductive inference. I discuss these more general assumptions of abductive and inductive inference in the final section. For now, I wish simply to point out that some guiding principles are based on more general features of reasoning and types of inference. These, like in the instances of more general assumptions about abduction and induction above, are guiding principles for logical reasoning — they are *logical guiding principles*.[12]

4.2.1 Returning to Investigation

The above account allows us to refine the account of deliberate and intentional inquiry. A judgment can be represented by a series of inferences and an individual can be attentive

[11] Further passages where Peirce summarizes this process can be found in [CP 3:160-164] & [CP 4:53-55].

[12] Peirce refers to the distinction between logical (or formal) and factual (or material) guiding principles in [CP 2:589]. Peirce offers a similar distinction in *Fixation*: "But it so happens that there exists a division among facts, such that in one class are all those which are absolutely essential as guiding principles, while in the others are all which have any other interest as objects of research. This division is between those which are necessarily taken for granted in asking why a certain conclusion is thought to follow from certain premisses, and those which are not implied in such a question" [CP 5:369].

to the premises upon which the conclusion of the judgment is based. When an individual is attentive during inquiry we can now be more specific and say that the individual is attentive to this series of inferences. Which part or features of the series the individual is attentive to distinguishes deliberate and intentional inquiry.

A judgment is deliberate if the inquirer is attentive to and begins to exercise control over the rule of thought by which the conclusion is reached. The individual is in this case aware of further instances where the rule would apply. Recall the Herbert example from Chapter 3.3.1. The effect of deliberate behavior is a *more general effect* on the individual's behavior. Herbert deliberated in advance about what to do if an article of clothing were to catch fire. The act had a more general effect on Herbert's behavior because the rule of action that was the result of Herbert's deliberation is a rule that applied more generally to other potential actions, e.g. to other articles of clothing, to fires located not just in the kitchen but to other parts of the house, and beyond. Exercising control over the rule of thought leads to the general effects on an individual that I've argued correspond with deliberate behavior.

A judgment is intentional if the inquirer is attentive to and begins to exercise control over a judgment's guiding principles. In this case the individual is attentive to further instances where the guiding principles would apply and the individual's behavior is correspondingly effected. Return again to the Herbert example. What is characteristic of intentional behavior is a continued general effect on the individual's behavior. If upon smothering the fire Herbert were to affirm or update his rule for action, then Herbert intentionally smothered the fire. In this case the experience would make Herbert revise his guiding principles, and this revision would in turn lead to a further, general effect on his behavior. The Peircean investigator, i.e. an individual intentionally engaged in inquiry, is attentive to and exercises control over the guiding principles of inference.

Recall the passage from the discussion of investigation earlier in Section 1:

> In genuine reasoning, we are not wedded to our method. We deliberately approve it, but we stand ever ready and disposed to reexamine it and to improve upon it, and to criticize our criticism of it, without cessation. Thus the utility of the word "reasoning" lies in its helping us to discriminate between the

self-critical and uncritical formations of representations. [MS 831]

The Peircean investigator, we may say, is not wedded to a logical method but stands "ever ready and disposed to reexamine it and to improve upon it, and to criticize our criticism of it, without cessation." The Peircean investigator contributes to the development of the guiding principles of inference.

I have stated throughout the dissertation that the Continuity of Explanation serves as a guide for thought. I began in Chapter 2 by showing broadly that the CE captures a theory of meaning and a theory of inquiry. Chapter 3 substantially defended this claim by showing that the CE captures the commitments and methods of the three types of inference — abductive, deductive, and inductive — that Peirce takes to be characteristic of scientific inquiry. The resulting method, what I refer to as the CE Method, is a method for holding a belief accountable to scientific inquiry as Peirce sees it. It is a method of reasoning that preserves the experiential effects — and in so doing refines both the meaning of a conception and the ability to test the conception — and so can be used to determine whether and to what extent a belief is reasonable.

With the preceding discussion in this section the CE now reaches it fullest development as a method for guiding thought. The CE does not simply offer a method for determining whether a belief is reasonable but offers a guide for developing more reasonable beliefs. In being attentive to and exercising control over the guiding principles of inference, the Peircean investigator contributes to the development of more reasonable beliefs.

The aim of the dissertation is to argue that the CE method offers a guide for developing more reasonable behavior. At this stage in the dissertation all that remains to reach this conclusion is to rehash a familiar line of argument and appeal to the pragmatic correspondence between belief and a mode of action. The meaning of a belief, according to the Peircean pragmatist, is the mode of action it establishes. If this is the case, then in offering a guide for developing more reasonable beliefs the CE method similarly serves as a guide for developing more reasonable behaviors. With the conceptual point made, I turn to discuss some of the general behaviors that follow from the CE method.

4.3 Continuity of Explanation as a Guide for Developing More Reasonable Behavior

I discuss in this section how the Continuity of Explanation offers a method for developing more reasonable behavior. Whether the CE serves as a guide for thought is a question that, I take it, has been substantially answered. I turn now to the connection the CE places between thought and behavior. This connection was introduced in Chapter 2 with the broad commitment that the result or upshot of thought is to establish a mode of action. When we acknowledge that the CE offers a guide for thought, and recognize in turn that the result of thought is to establish a particular type of behavior, then we see how Peircean pragmatism offers a direct connection between thought and behavior. The CE method can in turn be applied towards understanding an individual's behavior. The result is that the CE method allows us to determine whether and to what extent an individual's behavior is reasonable. In this penultimate section I discuss a final consequence of the CE and show how the CE serves as a guide for developing more reasonable behavior. I offer an initial, simplified defense of this claim, and then offer a more elaborate defense based on the final feature of Peirce's theory of judgment discussed in Section 2.

The CE serves as a guide for developing more reasonable behavior when we recognize that each type of inference discussed in Chapter 3 recommends certain behaviors for testing a judgment. The behavior suggested by inductive inference, for example, is the behavior associated with sampling, which requires observation and attention, repeating observations, and recording the results. I discuss more of the behavior associated with abductive inference below. The behavior recommended by abductive inference is, in short, the more general commitments captured by the pragmatic maxim and the CE. In each case the CE suggests further behaviors for testing a judgment. This simplified argument shows how the CE recommends certain behaviors as reasonable.

This initial argument above can be refined and defended when we incorporate features of Peirce's theory of judgment and the discussion of investigation at the start of this chapter. In Section 2, I emphasized a final feature of Peirce's theory of judgment where reasoning rests on more general assumptions called guiding principles. According to Peirce these

guiding principles of reasoning correspond with more general behavioral tendencies. The CE method, therefore, can be said to recommend the behaviors that correspond with the guiding principles of reasoning. The discussion of investigation at the end of Section 2 adds to this account by suggesting how these general behaviors develop. An investigator who is attentive to the inferences upon which a judgment is based recognizes these guiding principles, eventually factors them into deliberation, and ultimately develops the logical guiding principles of inquiry. Peircean pragmatism, here characterized by the Continuity of Explanation, offers a method of reasoning, a method for determining reasonable behavior, and — now we can add — a method for developing more reasonable behavior.

4.3.1 (Logical) Guiding Principles of Reasoning

In terms of inquiry, keeping the practice going is the only way to ensure that our belief is neither poor nor undeveloped. Peirce refers to this tendency to keep inquiry going as *the will to learn*.[13] Peirce offers what I take to be an example of the will to learn when he praises the work of Wilhelm Wundt, one of the first experimental psychologists. Peirce writes:

> But the most admirable trait of all — that self-respecting quality of Wundt's which no foibles can obscure — is his genuine anxiety to correct the opinions which he at the time entertains, and to cast away his most brilliant theories the instant the dicta of experience seem to be against them... [CP 8:201]

The will to learn, as he puts it elsewhere, begins as a dissatisfaction with one's present state of opinions [CP 5:583].

A surefire means of cutting ourselves off from inquiry is to adopt a method that prevents its continuation. Peirce discusses several assumptions that prevent the will to learn. Taking a belief to be ultimately settled or fixed is one. As is taking a belief to be ultimately unknowable or inexplicable.[14] The will to learn is a regulative commitments for the practice

[13]See [CP 5:583], where he introduces the term, and the discussion that follows.

[14]See discussions of this point in [EP 1:27-30], [EP 1:275], and [EP 2:49-50].

of inquiry. It is in place to keep the practice of inquiry going and for it to have a chance at success.

The will to learn can be broken down into two further commitments. Both, as we'll see, can be accounted for by the Continuity of Explanation. The first is a *fallibilism*, which is the tendency that our beliefs be left open to revision.[15] The second is what Peirce refers to as *synechism*, which is the tendency to view the world as continuous. Inquiry requires that we not break reality into unrelated parts. To assume that two areas of inquiry are unrelated or incommensurate is to cut off further inquiry into the matter and the possibility of a future state of inquiry where the areas are related. The countervailing tendency to regard reality as continuous is Peirce's synechism.[16] Peirce writes: "Whatever is wholly incomparable with anything else is wholly inexplicable, because explanation consists in bringing things under general laws or under natural classes" [CP 5:289]. The claim offers direct support for Peirce's synechism. We need to assume that things are comparable — that, we may say, there is continuity in the world — in order to try and explain them. Peirce is explicit about the connection between continuity and generality. Peirce writes that synechism assumes "that the form under which alone anything can be understood is the form of generality, which is the same thing as continuity" [CP 6:173]. The assumption of continuity is, as the passage makes clear, the same assumption of generality that I appealed to throughout the last chapter. Peirce offers a further version of his synechism in the form of a maxim suggesting that the conclusions that we reach in inquiry should not transcend the limitations of the premises upon which they are based:

> The first maxim of my "Synechism" runs: "Let us not precide our conclusions beyond what our premisses definitely warrant." What you had a right to say was that for certain logical problems the entire development of cognition and along with it that of its object become pertinent, and therefore should be taken into account.[17] [CP 8:244]

[15] See [EP 1:xxii] and [EP 2:49-50].

[16] See [EP 1:313] and [EP 2:1].

[17] Of interest, Peirce offers this maxim of synechism as remedy for what he calls the 'Philosopher's Fallacy': "The fallacy of over-precision which consists not in taking an ell when one has a right to an inch,

What I take to be particularly enlightening in this passage, is that Peirce seems to be situating his synechism in the passage above within his theory of judgment. We, at the very least, can now give an explanation of this connection in terms of the CE developed here. The CE method serves as the example. An interesting consequence of the CE method is that in refining the meaning of a judgment the conditions for evaluating the judgment in turn become clear. The CE method suggests how in tracing out the consequences of the premises, we can determine the means for evaluating the premises and so test the result. This, as the quote above suggests, is Peirce's synechism.[18] It is the optimism that within every judgment we have the means of refining the meaning of the judgment and determining the conditions that would allow us to test the judgment.[19] The optimism of synechism balances the fallibilism. The CE situates both with respect to the will to learn.

The Continuity of Explanation captures the will to learn and the fallibilism and synechism it entails. The connection should come as no surprise. These are the most general commitments that regulate reasoning. The continuity of explanation includes these regulative commitments aimed at keeping explanation going. The continual application (and the presumed continuity that results) parallels Peirce's synechism, while the continued dissatisfaction with one's current views parallels Peirce's fallibilism.

In addition to the regulative commitments of the will to learn above, which represents

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but in stretching a warrant for a percentage of a micro-micron to more than the sum of all macro-kilometres, may be called the Philosopher's Fallacy" [CP 8:244].

[18]See a similar remark in terms of what is most characteristic of Peirce's pragmaticism: "If, besides being a Critical Common-sensist, he is also a pragmaticist, he will further hold that everything in the substance of his beliefs can be represented in the schemata of his imagination; that is to say, in what may be compared to composite photographs of continuous series of modifications of images; these composites being accompanied by conditional resolutions as to conduct." We may fill in the details of the example by suggesting that the composite photograph includes the series of inferences upon which it is based. Synechism is the assumption of the underlying semiosis in judgment.

[19]Compare also with the discussion in Chapter 3.2 where I discuss Peirce's realism and his view that reasoning has the means to correct itself.

the decision to engage in inquiry, logical inquiry for the Peircean pragmatist supposes further regulative commitments of its own; namely, "that [inquiry] is subject to some rules which all minds are alike bound" [EP 1:113]. This may not seem obvious at first. It follows, in short, from a further application of the CE to the decision to engage in inquiry. In settling doubt in terms of belief, we assume that the belief is better on some grounds, where these grounds are in turn subject to further inquiry. We assume, that is, that successful inquiry is itself governed by some rules, i.e. that it is governed by some law [EP 1:1:113]. This parallels Peirce's move to discuss an individual's actions in terms of a more general practice. We assume, in engaging in inquiry, that inquiry is governed by standards and methods characteristic of a general practice. This again should come as no surprise given that the decision to make sense of an individual's behavior is a decision to engage in inquiry.

The regulative commitment that distinguishes scientific inquiry, according to the Peircean pragmatist, is that it appeals to an underlying notion of *reality*.[20] Peirce writes of scientific inquiry:

> Its fundamental hypothesis, restated in more familiar language, is this: There are real things, whose characters are entirely independent of our opinions about them; whose realities affect our senses according to regular laws of perception, so we can ascertain by reasoning how things really are, and any man, if he have sufficient experience and reason enough about it, will be led to the one true conclusion. [EP 1:120]

As with all regulative commitments, Peirce is again clear that the scientific hypothesis (i.e. the underlying notion of reality) begins as an assumption that we can make. We act on the assumption, according to Peirce, in order to keep scientific inquiry going and for it to have a chance at being successful.

The notion of reality and the regulative commitments of Peircean inquiry extend and refine the regulative commitments of logical inquiry and the will to learn already discussed. An underlying reality serves as an explanation for the broad regulative commitment of

[20]See additional characterizations in [EP 1:52] and [EP 1:138-139].

logical inquiry. According to scientific practice, reality determines whether inquiry is successful and the method by which it is achieved.[21] The notion of reality can account for the assumption that inquirers are bound by the same law. The will to learn is also refined under scientific practice as Peirce sees it. The will to learn — referred to here in a specific scientific context, what Peirce refers to as the scientific spirit — requires inquirers to "not care whether the conclusions be wholesome or dangerous" [CP: 6:434] and requires a willingness "to dump [their] whole cart-load of beliefs, the moment experience is against them" [CP 1:55]. Peirce writes: "That which is essential [to scientific inquiry], however, is the scientific spirit, which is determined not to rest satisfied with existing opinions, but to press on to the real truth of nature" [CP 1:428].

The real is now taken to be independent of our opinions about it and the desire to learn the truth must include a docility towards the results of inquiry. This is another expression for the same desire expressed in the Wundt quote from the beginning of the section. The will to learn begins as a dissatisfaction with one's present opinions and proceeds as a willingness to continue to test one's opinions in experience.[22] "Truth," Peirce writes, "is the fruit of free inquiry and of such docility toward facts as shall make us always willing to acknowledge that we are wrong, and anxious to discover that we have been so" [CP 6:450].

Let me quickly summarize where we stand. For the Peircean pragmatist the will to learn is a general regulative commitment of inquiry. A Peircean investigator behaves in its accord. The will to learn can be broken down into a fallibilism and synechism, and can be refined in scientific inquiry to include the underlying assumption of reality. Each is a regulative commitment of inquiry. Each corresponds with general behavioral tendencies that the Peircean pragmatist takes to be appropriate for reasoning.

Refinements to Peirce's theory of judgment, and in particular the inclusion of the three types of inference, allows us to further develop this account. Each type of inference rests on general principles of its own. Abduction captures refinements on the will to learn, along with further commitments of logical and scientific inquiry. Induction captures

[21] See [EP 1:145-146].

[22] Peirce continues in the Wundt passage quoted before, that such a virtue necessarily results "from any well-considered desire to know the truth" [CP 8:201].

the fallibilism and the latter stages of inquiry when an investigator tests a judgment in experience. Shortly after introducing the will to learn, Peirce situates its role in relation to these types of inference:

> The Inductive Method springs directly out of dissatisfaction with existing knowledge. The great rule of predesignation, which must guide it, is as much as to say that an induction to be valid must be prompted by a definite doubt or at least an interrogation; and what is such an interrogation but first, a sense that we do not know something; second, a desire to know it; and third, an effort — implying a willingness to labor — for the sake of seeing how the truth may really be. If that interrogation inspires you, you will be sure to examine the instances; while if it does not, you will pass them by without attention. [CP 5:584]

The inductive method begins with abduction, and proceeds with an openness to test one's opinions in experience. Peirce suggests here that both abduction and induction follow from the more general behavioral tendency that is the will to learn. I now turn to discuss the regulative commitments of abductive and inductive inference in particular. I demonstrate the more general behavioral tendencies that correspond with the guiding principles of these types of inferences.

4.3.2 (Logical) Guiding Principles of Abduction

Once we recognize (as Section 2 suggests) that inferences rest on further, more general principles, then we can begin to discuss the more general behaviors that correspond with these principles. I turn now to discuss abductive inferences, its guiding principles, and the corresponding behavior in their accord. Peirce goes on to discuss the general principles of abduction:

> I now proceed to consider what principles should guide us in abduction, or the process of choosing a hypothesis. Underlying all such principles there is a

> fundamental and primary abduction, a hypothesis which we must embrace at the outset, however destitute of evidentiary support it may be. That hypothesis is that the facts in hand admit of rationalization, and of rationalization by us.[23] [CP 7:219]

Underlying abductive inference is this general principle. It is, as I have referred to it before, a regulative commitment. It is a commitment to continue to engage in the practice and for it to have a chance at success.

While at first abduction just poses a question, if it is sincere — if it, as Peirce says below, is to have any meaning at all — it must contain a further commitment to testing the abduction. Peirce writes:

> A given object presents an extraordinary combination of characters of which we should like to have an explanation. That there is any explanation of them is a pure assumption; To assert the truth of its conclusion ever so dubiously would be too much. There is no warrant for doing more than putting it as an interrogation. To do that would seem to be innocent; yet if the interrogation means anything, it means that the hypothesis is to be tested. [HP 2:898-899]

Peirce takes the demand that every hypothesis be tested to be a point driven home by scientific inquiry.

> The circumstance that a hypothesis, although it may lead us to expect some facts to be as they are, may in the future lead us to erroneous expectations about other facts, — this circumstance, which anybody must have admitted as soon as it was brought home to him, was brought home to scientific men so forcibly, first in astronomy, and then in other sciences, that it became axiomatical that a hypothesis adopted by abduction could only be adopted on probation, and must be tested. [CP 7:202]

[23] The passage continues with a helpful example: "That we must hope they do, for the same reason that a general who has to capture a position or see his country ruined, must go on the hypothesis that there is some way in which he can and shall capture it."

Every hypothesis is adopted on probation while its consequences are put to the test.[24] An abductive inference would be guided by this further commitment. Every abduction rests on a commitment that the facts in hand admit of rationalization. Every abduction, furthermore, includes a commitment to testing the hypothesis.

The guiding principle of abduction can continue to be refined. A final refinement (for our purposes here) comes when we situate abduction amidst its role within the other types of inference. Abduction furnishes the concepts employed in deduction and induction, and it is ultimately held accountable to these other inference types. Abduction begins when a question is posed and a hypothesis is offered as a potential response. The hypothesis is then put on probation while its consequences are traced out and put to the test. Induction ultimately determines whether and to what extent the hypothesis is affirmed in experience. This is in accord with the broader principles discussed above. An abduction needs to admit of rationalization and of further testing in order for it to be inductively appropriate. The guiding principle of abduction, given this refinement, rests on abductions ultimate accountability to the other inference types.

Recall the general principle that Peirce takes to govern abduction that was introduced in Chapter 2.2:

> Any hypothesis, therefore, may be admissible, in the absence of any special reasons to the contrary, provided it be capable of experimental verification, and only insofar as it is capable of such verification. [CP 5:197]

This regulative principle of abductive inference arises when we recognize the role abduction plays amongst the other types of inference. It is simply a restatement of the claim above

[24]Peirce gives a nice summary of this point in [CP 7:220]. In the passage Peirce emphasizes that a hypotheses should also be selected on considerations of economy. On the one hand the argument for economy seems quite simple — Peirce recognizes that we need to recognize that some hypothesis are easier to test, and so some will be more fruitful and economical for further inquiry than others — but I take the underlying argument to be dependent on Peirce's logic and to be more subtle and complicated. For this reason I do not address it here.

that every abductive inference would eventually be held accountable to further inductive testing. Recall, also, the early version of the pragmatic maxim that I took as my starting point in Chapter 2.1:

> Admit no statement concerning what passes within us except as a hypothesis necessary to explain what takes place in what we commonly call the external world. [EP 1:30]

This is also a restatement of the guiding principle of abduction in terms of its ultimate accountability to induction. Each is simply an early version of the pragmatic maxim. Here we see again that the pragmatic maxim is a regulative commitment of abduction. At this point we can be more specific and state that the pragmatic maxim is a guiding principle of Peircean inquiry. Though it begins as a vague regulative commitment, it can be defended as a guiding principle supported by Peirce's theory of judgment.

The pragmatic maxim is a product and development of inquiry. It is a development that arises from investigating the regulative commitments of the practice of inquiry. The Continuity of Explanation can account for this development. The CE can account for both how the pragmatic maxim arose in inquiry and how it will continue to be developed during inquiry. The answer to both is the process of understanding the guiding principles of inquiry, and in this case in particular, of understanding the guiding principles of abduction.

An individual who continues to intentionally engage in abductive inference, would come to be attentive of these guiding principles. An investigator who continues to pay attention to the guiding principles of abductive inferences and its results begins a process of sampling. Such an investigator would recognize that these guiding principles are affirmed as one engages in the practice. The Peircean investigator would come to recognize and behave in accord with these guiding principles. This affirmation that follows arises through a second type of inference — that of induction — and so we now turn to it.

4.3.3 (Logical) Guiding Principles of Induction

I discussed above some of the guiding principles for abductive inference. In this section I discuss some of the guiding principles for induction. The discussion is aided by the account of induction given in Chapter 3.2.3. Recall that Peirce takes induction to rest on assumptions about sampling. Sampling requires observation and attention, recording the results, and repeating this process of observation and recordings. Summarizing induction, Peirce writes:

> The operation of testing a hypothesis by experiment, which consists in remarking that, if it is true, observations made under certain conditions ought to have certain results, and then causing those conditions to be fulfilled, and noting the results, and, if they are favorable, extending a certain confidence to the hypothesis, I call induction. [CP 6:526]

The passage above suggests that induction rests on regulative commitments to attention, experimentation, and the like. We can now discuss these commitments in terms of guiding principles of inductive inference.

I argued in Chapter 3.2.3 that induction rests on two assumptions. The first is the assumption that parts make up and constitute the whole. The second is that through continued sampling an investigator would converge, albeit indefinitely, on an accurate approximation of the way things are.[25] These begin simply as assumptions — they are, I argued, regulative commitments of inductive inference. An individual who intentionally engages in inductive inference, would nonetheless come to be attentive to these assumptions. A process of further sampling follows and these guiding principles are in turn subject to inductive sampling. It is here that the guiding principles of induction begin to be affirmed in experience.

Recall that according to Peirce the warrant for induction lies in confidence in the inductive method (see, again, the discussion in Chapter 3.2.3). The warrant for induction,

[25] See again the discussion of induction in Chapter 3.2.3. Also passages from Peirce in [CP 5:349], [CP 2:269], & [CP 2:709].

Peirce writes, is that "this method persistently applied to the problem must in the long run produce a convergence (though irregular) to the truth" [CP 2:775]. The CE method and the discussion above allows us to refine this account. An investigator who continues to intentionally engage in inductive inference, begins to pay attention to the assumptions upon which induction relies and the result is the same process of sampling. The method and guiding principles of induction begin to be affirmed. Peirce writes:

> . . . it cannot be said that we know an inductive conclusion to be true, however loosely we state it; we only know that by accepting inductive conclusions, in the long run our errors balance one another. In fact, insurance companies proceed upon induction; — they do not know what will happen to this or that policyholder; they only know that they are secure in the long run. [CP 5:350]

The investigator who continues to intentionally engage in induction begins to have confidence that the method is secure in the long run. The result is a more general effect on an individual's behavior. It is a general confidence that the method would prove successful.

This general confidence in the inductive method preserves Peirce's falliblism. Because the convergence is irregular this confidence is not in any one result of the inductive method. Peirce is explicit on this point:

> . . . it is by no means certain that the conclusion actually drawn in any given case would turn out true in the majority of cases where precisely such a method was followed; but what is certain is that, in the majority of cases, the method would lead to *some* conclusion that was true, and that in the individual case in hand, if there is any error in the conclusion, that error will get corrected by simply persisting in the employment of the same method. [CP 2:781, emphasis in original]

The Peircean investigator would come to have a general confidence in the inductive method. This corresponds with a hope that errors balance out in the long run, and do so all the while recognizing that the current outcome may not be affirmed in the long run. Confidence in the inductive method sustains Peirce's fallibilism. The investigator in this case would have

confidence that the method pursued indefinitely would converge (though irregularly, as the quote makes clear) to the truth.

This general confidence in the inductive method is again the product of inquiry. It is a development that arises from investigating the guiding principles of the practice of inquiry. Just like in abduction, the CE can account for this development. The general confidence in the inductive method comes from refining and developing the guiding principles of induction. The Peircean investigator behaves in accord with the guiding principles of induction.

I ended the last section on the guiding principles of abductive inference by turning to the affirmation that induction provides. Here we see that the result is an increased confidence in the guiding principles of abductive inference. An investigator — one who is intentionally engaged in inquiry and so on the inferences upon which inquiry is based — who continues to engage in the practice would come to be attentive to them. The result is that these guiding principles of abduction in turn begin to see assent and affirmation through induction. Peirce recognizes that an abduction method can be put to the test:

> The validity of a presumptive adoption of a hypothesis for examination consists in this, that the hypothesis being such that its consequences are capable of being tested by experimentation, and being such that the observed facts would follow from it as necessary conclusions, that hypothesis is selected according to a method which must ultimately lead to the discovery of the truth, so far as the truth is capable of being discovered, with an indefinite approximation to accuracy. [CP 2:781]

By developing the guiding principles of abduction and testing them through induction, one gains confidence in the abductive method.

The general confidence in abductive and inductive inference leads to more general effects on an individual's behavior. The investigator that continues to intentionally engage in the practice would come to have increased confidence in the guiding principles of the practice. An investigator would begin to act in accord with the guiding principles of abduction and induction. These are general behaviors that for Peirce are appropriate to the practice of inquiry.

4.4 Conclusion

I have suggested that the Continuity of Explanation serves as a guide for developing more reasonable behavior. In this chapter I have shown how certain behaviors correspond with the three types of inferences of which Peirce takes judgment to consist — abductive, deductive, and inductive inference. Each type of inference recommends certain behaviors for testing and evaluation, and each rests on certain guiding principles that correspond with more general behaviors.

Inductive inference recommends certain behaviors related to observation and sampling. But there are also further guiding principles upon which induction rests. Induction, for Peirce, rests on the commitment that in the long run continued sampling would converge (albeit indefinitely) on some truth. An investigator who is attentive to this guiding principle would come to have a confidence in the inductive method. The result is a recognition that progress — progress of convergence towards some truth — comes from continued investigation.

Abductive inference results in the development of a hypothesis. Abductive inference rests on a primary abduction that the "the facts in hand admit of rationalization and, of rationalization by us" [CP 7:219]. An abductive inference furthermore, if it is to be sincere, rests on some commitment to test that hypothesis. This is a commitment to the abductive inference having some experiential content so that observation and sampling can operate. The guiding principle of abductive inference is none other than the pragmatic maxim. Abductive inferences, carried out over and over again, in turn leads to inductive support. Both types of inference support each other.

Peirce also suggests behaviors that correspond with reasoning in general. These behaviors, for Peirce, include a will to learn, fallibilism, and a synechism. Continued abductions and inductions suggest that these behaviors would be affirmed as inquiry continues. The result is the final support for the claim that Peircean pragmatism offers a guide for developing more reasonable behavior. Each arises from the continued trials and successes of inquiry.

Chapter 5

Conclusion

Charles Peirce is not known for his ethical and normative thought. Most of Peirce's writings focus on logic and scientific inquiry. Peirce nonetheless increasingly came to recognize the ethical and normative significance of his theory of logic and inquiry.

The secondary scholarship on Peirce's normative and ethical thought has mostly focused on two strands in Peirce's writings.[1] The first are Peirce's comments on the relation between ethics and his classification of the normative sciences. The second are Peirce's comments on the division between theory and practice in 'Philosophy and the Conduct of Life'. His remarks suggest, and the secondary literature has tended to agree, that a more general guide for developing behavior does not follow from within his theory of logic and inquiry.[2]

I take a significant part of Peirce's normative thought to have gone under-examined. A guide for behavior does follow from within Peirce's theory logic and inquiry. This becomes clear when we properly situate the relation between belief and the corresponding mode of action that belief establishes. Peirce's theory of judgment, which allows us to evaluate a

[1] See the introductions in [3], and [19].

[2] See throughout [8].

belief, can then be applied to the evaluation of the corresponding mode of action. The dissertation makes this connection, latent in Peirce's writings, explicit. Peircean pragmatism — here characterized by the Continuity of Explanation — offers a guide for developing more reasonable behavior.

The argument begins with the pragmatic assumption that the meaning of a belief is the mode of action it establishes. I go on to show how any change in belief corresponds with a specific change in the mode of action. The argument for this is introduced in Chapter 2 but reaches its culmination in Chapter 3, where I offer a method for how this specific change can be determined and evaluated. The result is that the CE can determine whether a belief is reasonable. Chapter 4 extends this account. The method developed in Chapter 3 does not simply offer a means of determining whether a belief is reasonable; it suggests a method for developing more reasonable beliefs and corresponding modes of action. Peircean pragmatism does not simply describe beliefs in terms of corresponding modes of action, but *recommends* certain beliefs and behaviors as well. Peircean pragmatism therefore offers a more general guide for behavior.

Once belief and its corresponding mode of action are situated, then a theory for individuating actions follows. It has been noted by several authors (see [18, 4, 17]) that pragmatism offers a theory of action. Recalling a quote from Robert Tallisse about whether pragmatism is a philosophy of action, Tallisse writes:

> [Pragmatism is] concerned with giving an empiricist and naturalist account of action. It wants to try and understand all of the philosophical concepts that we think are important for explaining action — like belief, truth, meaning — in naturalistic terms rather than through an appeal to something either transcendental or mental in some non-naturalistic sense, or a Cartesian sense. It tries to naturalize all these concepts by explaining them in terms of human activity and action. [31]

In this dissertation the further details for this philosophy of action, at least in the case of Peircean pragmatism, have been presented. I show how belief, reasons, the practice of inquiry, as well as deliberate and intentional behavior, can each be explained in terms of corresponding modes of action.

The aim of the dissertation is to lay the foundation for an alternative approach to a Peircean normative theory and ethics. While there has been increasing interest in Peirce's normative thought and extending this normativity to ethics, there has been little interest in developing a Peircean ethics from within Peirce's theory of judgment and inquiry alone. I think a Peircean ethics can be motivated, and indeed is already latent within, his more general writings on these subjects. It is this approach that I have begun to develop here. Most broadly, Peirce takes an ethical theory to be a general guide for conduct — it offers a guide for conduct in thought, action more generally, and feeling. The question is whether a more general guide for conduct follows from within Peirce's theory of judgment and inquiry. I've taken the first step in this dissertation towards showing that it does. Peirce's theory of judgment and inquiry provides a guide for action more generally in offering a guide for developing reasonable behavior. This approach has one significant advantage. Rather than showing how Pierce's theory of inquiry applies to a new domain, namely ethics or morality, this approach shows how a guide for behavior follows from *within* Peirce's theory of inquiry. No additional assumptions or metaphysics is needed.

The thesis offers further benefits. The Continuity of Explanation (CE) is the commitment that every judgment entails consequences for action that are accountable to scientific inquiry. The CE serves as a characterization of Peircean pragmatism in that it captures three core aspects of Peirce's philosophy: (i) Peirce's metaphysical assumptions, (ii) the pragmatic maxim, and (iii) Peirce's theory of judgment. Chapter 2 and Chapter 3 defend the CE and its relation to these three aspects of Peirce's thought. Substantial aspects of Peirce's philosophy can be recovered from the Continuity of Explanation. The thesis demonstrates the recovery (at least in part) of Peirce's synechism, fallibilisim, and his realism. Other aspects, such as Peirce's tychism, can be recovered as well.

Just as significant, the Continuity of Explanation is presented in a continuous story of development. In regards to the development of a belief, Peirce writes:

> A belief-habit in its development begins by being vague, special, and meagre; it becomes more precise, general, and full, without limit. The process of this development, so far as it takes place in the imagination, is called thought. [CP 3:160]

I show here how the CE begins as a vague commitment to scientific inquiry. As inquiry continues this commitment becomes more precise. What begins as a vague regulative commitment, develops into the pragmatic maxim, is further developed through Peirce's theory of judgment to be both a theory of meaning and of inquiry, and this leads , in turn, to the development of deliberate and intentional (and onto further normative aspects) of Peirce's theory of inquiry. The CE remains throughout, but is increasingly made more precise, general, and full.

I end with several remarks regarding the continuation of the project. Several of Peirce's remarks suggests that his pragmatism (and so, analogously, the CE) serves as a guide for sentiment in addition to behavior. Peirce goes on to suggests that the investigator would come to acquire these sentiments and behaviors if they were to continue to engage in the practice. I address these points in turn and begin with the connection to sentiment. The development of sentiments can be incorporated by the framework presented in the dissertation. All that is needed is a further claim that desires and sentiments are included in regulative commitments. Some passages from Peirce seem to support this approach. Below is one such passage:

> It may seem strange that I should put forward three sentiments, namely, interest in an indefinite community, recognition of the possibility of this interest being made supreme, and hope in the unlimited continuance of intellectual activity, as indispensable requirements of logic. Yet, when we consider that logic depends on a mere struggle to escape doubt, which, as it terminates in action, must begin in emotion, and that, furthermore, the only cause of our planting ourselves on reason is that other methods of escaping doubt fail on account of the social impulse, why should we wonder to find social sentiment presupposed in reasoning? [CP 2:665]

Peirce suggests here that the guiding principles of reasoning include the development of certain sentiments.[3] An inquirer who possesses sentiments corresponding with the regulative commitments will be in the best position to engage in the practice of inquiry. The

[3]This connection is recognized and elaborated in [14, Ch. 9].

inquirer's behavior will in this case be in the least amount of friction with the practice of inquiry and its results. I do not defend this claim here, but I take the sentiments Peirce suggests above to be variations on the guiding principles of induction described in Section 3.3. Each of these sentiments correspond with commitments for continued sampling. The only difference is that in this case this commitments of sampling extend to the community of inquirers.

Developing this further connnection between the CE and sentiment will go some way towards developing a Peircean ethics. Peirce took ethics most broadly to be a guide for conduct in each of its three forms — conduct in thought, conduct in action or behavior more generally, and conduct in feeling. The CE has been shown to guide conduct in thought and behavior. Developing how the CE serves as a guide for sentiment would produce the third component that Peirce takes to distinguish an ethical theory.

The second point is that Peirce suggests that an investigator is destined to acquire certain beliefs if inquiry continues. The Peircean investigator who continues to engage in the practice of inquiry would come to behave in certain ways. Let me first clarify what Peirce means by 'destined.' He writes:

> I have given many other reasons for my firm belief that there are real possibilities. I also think, however, that, in addition to actuality and possibility, a third mode of reality must be recognized in that which, as the gipsy fortune-tellers express it, is "sure to come true," or, as we may say, is destined... [CP 4:547]

Peirce does not intend to use the term as a metaphysical or mystical notion.[4] Giving an

[4]See a useful comparison to the use of 'fated':

> Fate means merely that which is sure to come true, and can nohow be avoided. It is a superstition to suppose that a certain sort of events are ever fated, and it is another to suppose that the word fate can never be freed from its superstitious taint. We are all fated to die. [CP 5:407n]

Peirce distinguishes 'fated' from 'destined' in [CP 4:547n]. The difference does not influence the point here.

example of the destined results of investigation, Peirce writes:[5]

> On the other hand, all the followers of science are animated by a cheerful hope that the processes of investigation, if only pushed far enough, will give one certain solution to each question to which they apply it. One man may investigate the velocity of light by studying the transits of Venus and the aberration of the stars; another by the oppositions of Mars and the eclipses of Jupiter's satellites; a third by the method of Fizeau; a fourth by that of Foucault; a fifth by the motions of the curves of Lissajoux; a sixth, a seventh, an eighth, and a ninth, may follow the different methods of comparing the measures of statical and dynamical electricity. They may at first obtain different results, but, as each perfects his method and his processes, the results are found to move steadily together toward a destined centre. So with all scientific research. Different minds may set out with the most antagonistic views, but the progress of investigation carries them by a force outside of themselves to one and the same conclusion. This activity of thought by which we are carried, not where we wish, but to a fore-ordained goal, is like the operation of destiny. No modification of the point of view taken, no selection of other facts for study, no natural bent of mind even, can enable a man to escape the predestinate opinion. [CP 5:407]

Peirce is discussing destined opinions or beliefs in these passages. Given the discussion through the thesis, however, the Peircean pragmatist cannot separate these destined beliefs from the destined modes of action that correspond with them. The framework presented in the dissertation can again accommodate such a position. Given the account of intentional behavior, the Peircean investigator can begin to determine what an investigator would believe, behave (and perhaps feel) if they were to continue to engage in the practice of inquiry. The account of intentional behavior, that is, provides the tools to begin to defend this position. Connecting the CE method to sentiments and strengthening the connection to destined beliefs, behaviors (and even sentiments) would move Peircean

[5]Peirce makes the same point with respect to logic in [CP 3:161]. Also see a similar discussion in [CP 7:334-5]

pragmatism closer towards a developed ethical theory. The CE method as developed here, however, makes substantial inroads by showing how Peircean pragmatism offers a guide for developing more reasonable behavior.

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